

# **GED Level 4 Bridge Instructional Curriculum**

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**Tennessee Department of Labor and  
Workforce Development  
Office of Adult Education**

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# GED Level 4 Bridge Instructional Curriculum

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Mathematics and Language Arts

Materials prepared as a project of the Adult Education Management and Instructional Team.

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# **GED Bridge**

## **Level 4**

### **Mathematics**

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## GED Level 4 Bridge

The Official Practice Test is a guide to determine skill strengths and weaknesses of each student. Practicing skills at this level can increase the GED score in Math on the GED test.

The calculator is used on Part I of the Official Practice Test (OPT) to speed up the process of solving problems under a time limit. It is good practice to use paper and pencil then double check the problem on the calculator. It is easy to make mistakes with the calculator. If the problem is written down while solving, a mistake can be seen.

Addition, subtraction, multiplication and division will be reviewed in Level 4 Math Bridge to prepare for decimal, percent, and word problems. Each basic math skill builds on the algebra and geometry skills for the GED test.

One investment to consider is the purchase of the *CASIO fx 260* calculator. This is the official GED calculator that will be used at the testing centers. This calculator can make solving problems easier.

## Math /Addition\_\_\_\_\_

### *Addition*

When adding numbers in sentence form, it is best to rewrite the problem before solving. Work the problem with paper and pencil then double check using the calculator.

**Calculator:** When entering numbers into the calculator using addition, it doesn't matter which number is entered first. Enter the number 45 press the plus key + enter the number 35 press the equal key =

Example:  $45 + 35 =$

$$\begin{array}{r} 45 \\ + 35 \\ \hline 80 \end{array}$$

$283 + 22 + 9 =$

Rewriting the problems help to ensure numbers are entered correctly or easily calculated using paper and pencil.

### **Guided practice:**

1.  $87 + 18 =$

2.  $334 + 129 =$

3.  $53 + 357 =$

### *Subtraction*

When subtracting numbers in sentence form, it is best to rewrite the problem before solving.

$356 - 23 =$

$$\begin{array}{r} 356 \\ - 23 \\ \hline \end{array}$$

**Calculator:** *When entering a subtraction problem into the calculator, enter the larger number in first.*

Example: Enter the number 456 press the minus – key enter the second number 23 press the equal sign = 433

1.  $827 - 25 =$

2.  $56 - 12 =$

3.  $45 - 16 =$

### **Guided practice:**

1.  $345 - 21 =$

2.  $645 - 12 =$

3.  $545 - 44 =$

## Math / Multiplication and Division\_\_\_\_\_

### *Multiplication*

Multiplication problems can be done using paper and pencil or on the calculator. There are no stand alone multiplication problems on the GED test but rather problems that require multiplication. Don't stress if multiplication facts are forgotten. Writing the problem down is most important. Enter the numbers into the calculator to solve.

**Remember:** Multiplication can be written in different formats.

The format that is most recognizable is using the  $\times$  between two numbers, example:  $2 \times 3$

Using a dot between numbers also means multiply  $7 \bullet 5$

Parenthesis around a number means multiply  $(9)(6)$ ,  $5(3)$

Enter the numbers as follows – enter 6 press the multiplication key  $\times$  enter the next number 2 press the equal key = 12

$$6(2) = \quad 12 \bullet 6 = \quad (111)(5) = \quad 55 \times 55 =$$

**Guided practice:**

$$1. 45 \bullet 3 = \quad 2. (321)9 = \quad 3. 288 \times 22 =$$

### *Division:*

There are no straight division problems on the GED test but there are multistep problems that require division. **Remember when solving division problems the larger number must be entered into the calculator first.** Rewrite the problems. Division problems can be set up different ways. Two ways that most common are below:  $654 \div 2 =$  or  $2 \overline{)654}$

$$565 \div 5 = \quad 25 \overline{)100} =$$

Guided practice:

$$1. 224 \div 14 = \quad 2. 435 \div 15 = \quad 3. 184 \div 8 =$$

## Math /Decimals \_\_\_\_\_

### *Decimals*

Addition, subtraction, multiplication and division of decimals are similar to working with whole numbers. Be sure and put the decimal in the calculator as it is seen in the problem.

**Calculator addition:** Adding numbers with decimals is the same process as adding whole numbers. The decimal points are entered with the numbers  
 $82.65 + (\text{add}) 52.46 = (\text{equal}) 135.11$

1.  $365.5 + 2.5 =$                       2.  $96.2 + 101.29 =$                       3.  $85.10 + 13.288 =$

### **Calculator subtraction:**

When subtracting decimals using the calculator, enter the larger number into the calculator first then subtract the second number given.

$262.8 - (\text{subtract}) 24.6.6 = (\text{equal}) 238.2$

1.  $365.5 - 2.5 =$                       2.  $96.2 - 1.2 =$                       3.  $85.1 - 13.2 =$

### **Calculator multiplication:**

When multiplying decimals, the decimal point is automatically in the answer. Just be sure the decimal point is placed as it is seen in the problem.

$134.4 \times (\text{multiply}) 5.4 = (\text{equal}) 725.76$

1.  $365.5 \times 2.5 =$                       2.  $96.2 \times 1.2 =$                       3.  $85.1 \times 13.2 =$

### **Calculator division:**

Dividing decimals is similar to dividing whole numbers. The first number listed is entered into the calculator first. The decimal point is entered as seen in the problem:  $216.8 \div 2.2 = 98.545$  or  $98.54$

1.  $365.5 \div 2.5 =$                       2.  $96.2 \div 1.2 =$                       3.  $85.1 \div 13.2 =$

**Be sure to put in the decimal point as the problem is worked otherwise the answer will be wrong.**

## Math /Word Problems\_\_\_\_\_

### Solving Word problems

A word problem is a short story that asks a question or tells the reader to find something. Using the information given, the problem can be solved. The Official Practice Test (OPT) and the GED contain word problems which must be solved. The best way to solve word problems are to take the information and decide which information is necessary and which information is not necessary.

### Steps to solving a word problem:

1. **What is the question being asked?** Know what is being asked in the question.
2. **What information is necessary to solve the problem?** Decide which numbers are needed. Sometimes extra information is given and that information will need to be eliminated.
3. **What math operations will be needed to solve?** Will more than one operation be needed? – add, subtract, multiply, or divide.
4. **Does the answer make sense?** Most GED problems are multiple-choice. Use the answers given to solve. Eliminate answers that are way off.

Look for **key** words when deciding which operation to use:

**Addition:** add, sum, total, altogether, combine, increased by,  
in all

**Subtraction:** subtract, difference, minus, less than,  
decreased by

**Multiplication:** multiply, product, total, times, twice

**Division:** divide, each, average, split

## Math /Word Problems \_\_\_\_\_

### **1. What is the question being asked?**

Word problems can be in one sentence or several sentences.

### **Example 1:** Single step word problem

How much does 15 pounds of banana's cost if the price per pound is \$1.99?

What is the question asking? Cost of 15 pounds of bananas

### **2. What operation will be used to solve?** Multiplication

### **3. What numbers will be used to solve?** 15 and 1.99

### **4. What is the answer?** 29.95

Since this problem involves money, a dollar signed will be in the answer - \$29.95

**Does the answer make sense?** yes

## Math /Word Problems \_\_\_\_\_

### Example 2 : Multi Step word problem

Joe Bob wants to buy a new motorcycle. He thought about a small car that would cost him \$12,000 but decided he liked the motorcycle idea. He knows that he will have added expenses. William will have to pay \$45.00 per month for insurance, \$24.75 for motorcycle tags, \$229.99 for a helmet, and \$165 for a jacket. Including the cost of the motorcycle of \$2,750.00, what was the motorcycle going to cost Joe Bob the first year? \*\* watch for extra steps

**1. What is the question asking?** Total cost of owning a motorcycle

**2. What information is necessary to solve the problem?**

Cost of : insurance x 12 months, tags, helmet, jacket, motorcycle

**3. What math operations will be needed to solve?** Addition, multiplication

*To solve this problem so far it was determined:*

**What is the question?** Total cost of owning motorcycle for the first year

**What numbers are needed?**  $(45 \times 12) + 24.75 + 229.99 + 165.00 + 2,750.00$

**What math operation will be used to solve?** Multiplication, addition

**What extra information is given?** Small car cost \$12,000

**What is the answer?** \$3,709.74

## Math /Word Problems\_\_\_\_\_

1. Frances is trying to save more money each month by cutting out fast food. Since she is single, she eats out 7 days per week. She spends an average of \$43.75 per week on fast food. How much will she save if she cuts out fast food for 6 months?
2. Jim works 6 days a week, 8 hours a day for four week in January. If he makes \$7.40 dollars an hour, how much does he earn that month?
3. Rebecca is planning on having a baby. She starts purchasing diapers as soon as she finds out she is pregnant. If you change a baby on average 12 times a day, how many diapers will she need for the first year of the baby's life? If there are 24 diapers in a package, approximately how many packages will she need?
4. Francine wanted to spend her stimulus check on a new refrigerator and television. Her stimulus check was for \$1325.00. Buying a refrigerator at \$479 and dishwasher for \$388 at the same time Francine received an additional \$100 off the purchase. How much did Francine spend? How much of her stimulus check would she have left to put in savings?
5. Smyrna began 1979 as an unusually wet year. In January, the city recorded a total of 8.4 inches of rain. In February, 15.78 inches of rain fell. In March, the city recorded 11.4 inches of rain, In April, May and June, the rainfall totaled 6.76 each month. What was the average amount of rain per month?

## Math /Percent\_\_\_\_\_

When solving percent problems, there are only *three* missing number values; part, percent, and the whole.

### Solving for Missing Value PART:

35% of 70 is \_\_\_ ?

#### Step 1:

When working with percent problems, the first step in solving the math operation is **changing the percent to a decimal**.

**Drop the percent sign and replace it with a decimal.** If there is a **decimal in the percent**, begin with that decimal and move it two places to the left. The decimal is always moved **two spaces to the left**.

1. What does the percent look like? 65% or 25.6%
2. Drop percent sign and replace with decimal 65. or 25.6  
If a decimal is in the percent, move the decimal two places from there 25.6 changes to .256
3. Move the decimal two places to the left .65 or .256

#### Step 2:

Remember that the word "**of**" means **multiply**.  
Change the word "of" to a multiplication sign "x"

#### Step 3:

The word "**is**" means **equals**. Change the word "is" to an equals

**Rewrite the problem to solve:** 35% of 70 is \_\_\_?

$$.35 \times 70 = \underline{\quad}$$

#### Step 4:

Multiply using the calculator  $.35 \times 70 = 24.5$

#### Guided practice:

1. 35% of 95=
2. 60% of 20 =
3. 20% of 100=
4. 16% of 100=
5. 10% of 200=
6. 19% of 85=

## Math /Percent\_\_\_\_\_

When solving percent problems, there are only *three* missing number values; part, percent, and the whole.

### Solving for a Missing Value Percent:

#### What % of 65 is 8?

**Format First:** Change this sentence to a math problem with word "of" changing to "X" meaning multiplication and the word "is" changing to = meaning equal

The problem reads:     % x 65 = 8

#### Find the Missing Number (percent):

Set this problem up so it can be read easily.

Step 1: Divide by the number on the same side as the part you are trying to find. In this problem, **the percent is missing - divide by 65.**

$$\underline{\quad} \% \times \frac{65}{65} = \frac{8}{65}$$

**Step 2:** 65 divided by 65 cancels out. Draw a line through these two numbers.

$$\frac{\cancel{65}}{\cancel{65}}$$

**Step 3:** Then, divide 8 by 65 and that will be the answer.  $\frac{8}{65}$

**Put the 8 into the calculator first, press the divide key  $\div$  enter 65 =**

**Step 4:** The answer is 0.12 - **to change the answer to a percent, the decimal is moved two places to the right, add the % sign 12%**

#### Guided Practice:

1. What % of 46 is 9?
2. What percent of 32 is 12? =
3. What % of 95 is 12?
4. What percent of 82 is 6? =
5.      % of 90 is 3?
6.      % of 65 is 42? =

**Math /Percent** \_\_\_\_\_

**Solving Percent Missing value:** When solving percent problems, there are only *three* missing number values; **part, percent,** and the **whole.**

**Solving for the Missing Value Whole:**

**6% of \_\_\_\_\_ is 40?**

**Format first:** Change this sentence to a math problem with the word "of" changing to X and the word "is" changing to = (equal)

The problem reads:  $.06 \times \underline{\hspace{1cm}} = 40$

**Step 1: Find the Missing Number (whole):**

Divide by the number that is on the same side of the equal sign as the part you are trying to find. In this example, you divide by .06.

$$\begin{array}{r} .06 \times \underline{\hspace{1cm}} = 40 \\ .06 \qquad \qquad \qquad = .06 \end{array}$$

**Step 2:** .06 divided by .06 cancels out. Draw a line through these two numbers.

$$\begin{array}{r} \cancel{.06} \times \underline{\hspace{1cm}} = 40 \\ \cancel{.06} \qquad \qquad \qquad = .06 \end{array}$$

**Step 3:** Divide 40 by .06

put the 40 in the calculator first press the ÷ key, enter .06 equal = answer is 666.66 rounded to the next whole number is 667

**note:** when a number after the decimal point is repeated over and over it is called a repeating decimal. The number is rounded to the **ones** place value moving it to the next number, in this case the number is greater than 5 so it rounds to a 7 – the answer is 667. To check yourself plug 667 in the problem above  $.06 \times 667 = 40$

Note the place value

6	6	<u>6</u>	.	6	6	6
hundreds	tens	ones.	tenths	hundredths	thousandths	

666.66 is a repeating decimal –

## Math /Percent \_\_\_\_\_

### Guided practice:

1. 15% of \_\_\_ is 50?
2. 25% of \_\_\_ is 100?
3. 17% of \_\_\_ is 124?
4. 50% of \_\_\_ is 90?

### Percent word problem

1. Janna went shopping at the Cute Clothes Mart. She bought a blouse for 25% off the sale price of \$45 and shoes for 35% off the sale price of \$55. What was Jeanna's total savings?
2. What is 50% of 100?
3. Junior's Taco Stand is offering a promotional 20% discount on the Taco Burger. If the burgers regularly sell for \$1.79, how much will the burgers cost after the sale?
4. If the car dealership in town employs 25 people and 25% are women, how many men work at the dealership? Round to a whole number
5. Bubba Blue's Television Store is reducing inventory. Bubba offers a 52" flat screen television for 45% OFF the regular price. The original price of the flat screen was \$1,788. What is Bubba's sale price?
6. It is senior citizen discount day at the local grocery store. If a person is 55 – 65 years old, the discount is 20%. If a person is 66 and older, the discount is 30%. If a person bought groceries that totaled \$225.56, what is the difference in savings between the two groups?
7. What percent of 4 gallons is 8 quarts?
8. Emily is reading a novel over summer break. She decides on a book that is 546 pages. She has already read 33% of the book. How many does Emily have left to read?

## Math /Percent \_\_\_\_\_

9. What % of \$50 is \$10?
  
10. Shawna bought a condo. She paid a \$9,500 down payment. If the \$9,500 is 20% of the price, how much did the condo cost Shawna?
  
11. If Rhonda takes a bike 12 mile trip around the local park and completed 75%, how many miles does Rhonda have left?
  
12. 20% of Bernie's monthly paycheck is withheld for taxes. If \$275 is withheld, what is Bernie's monthly income?
  
13. What are the average scores for the GED test in the adult education fall class? If the scores were recorded as 554, 472, 678, 450, 665, 552, 477, what is the mean score for the class?
  
14. Mark bought his family farm. The purchase price was \$245,000. The next year the real estate agent told Mark he could make a profit if he was interested in selling because property value had increased 25%. How much was the farm worth
  
15. The Mighty Blue Cell Phone Company is offering cell phones at a discount of 19%. The best selling phone is the Mighty Blue at a cost of \$149.99. If Randy bought two Mighty Blue phones, how much did he save?

## Math /Rounding\_\_\_\_\_

### Rounding:

Often test questions will ask to round answers to a certain place value.

**Place Value:** Each number has a place value both to the right and left of the decimal. 1234.568 Each number to the left of the decimal are whole numbers, one, tens, hundreds, thousands. Each number to the right of the decimal are defined as tenths, hundredths, thousandths

**How to round a number or determine its place value:** When asked to round a number, first identify the place value in the problem. Then, look at the number to the right of that place value; if this number is 5 or greater, the number rounds up. If this number is 4 or smaller, the number stays the same.

**For Example:** Round the following number to the nearest tenth.

654.78

**First**, identify the tenths place. The tenths place is the number directly to the right of the decimal point. In this case, that number is 7.

**Next**, look at the number to the right on 7. In this case, that number is 8.

**The Answer:** The number 8 is greater than 5, so the number 7 rounds up to 8, making the answer 654.8

**Another Example:** Round the following number to the nearest hundredth.

347.652

**First**, identify the hundredths place. The hundredths place is the number two places to the right of the decimal. In this case, that number is 5.

**Next**, look at the number to the right of the 5. In this case, that number is 2.

**The Answer:** The number 2 is less than the number 5, so the number 2 stays the same, making the answer 347.65.

## Math /Measurement Conversions \_\_\_\_\_

### Measurement Conversions

On the GED test there are problems that relate to a unit of measure. For example, a problem may be asked adding up the distance around a building in feet. However, the problem asks to give the answer in yards. The answer will be correct only if the answer is converted from feet into yards.

**To convert one unit of measure to another, follow these steps.**

**First**, write the conversion needed for the question.

For Example:

$$12 \text{ feet} = \underline{\hspace{2cm}} \text{ yards}$$

**Then**, write down the KEY. The key shows the relationship between the two numbers you are working with. In this case, the key is: 3 feet = 1 yard.

Write the KEY underneath your problem.

**For Example:**

$$\begin{array}{l} 12 \text{ feet} = \underline{\hspace{2cm}} \text{ yards} \\ 3 \text{ feet} = \quad \quad 1 \text{ yard} \end{array}$$

12 feet divided by 3 is 4, so the answer is 4 yards.

**Another Example:**

**120 minutes = \_\_\_\_\_ seconds      1 minute = 60 seconds**  
convert 120 minutes times 60 is 7200, so the answer is 7200 seconds.  
 $120 \times 60 = 7200$

### Conversions to Know:

$$1 \text{ foot} = 12 \text{ inches}$$

$$3 \text{ feet} = 1 \text{ yard}$$

$$16 \text{ oz} = 1 \text{ pound}$$

$$1 \text{ hour} = 60 \text{ min}$$

$$12 \text{ months} = 1 \text{ year}$$

$$1 \text{ mile} = 5280 \text{ feet}$$

$$1 \text{ mile} = 1760 \text{ yards}$$

$$8 \text{ oz} = 1 \text{ cup}$$

$$1 \text{ min} = 60 \text{ seconds}$$

$$1 \text{ year} = 365 \text{ days}$$

## Math / Measurement Conversions\_\_\_\_\_

Know these equivalencies of decimals, percents, and fractions

$$.25 = 25\% = \frac{1}{4}$$

$$.33 = 33\% = \frac{1}{3}$$

$$.50 = 50\% = \frac{1}{2}$$

$$.66 = 66\% = \frac{2}{3}$$

$$.75 = 75\% = \frac{3}{4}$$

$$\frac{2}{2} = 1 \quad \text{Any fraction over itself equals one}$$

### Symbols to recognize:

Think of ways that will help remember these symbols

Greater than

>	Inequality sign. Greater Than.
---	--------------------------------

$$2 > 1$$

$$15 > 9$$

Less than

<	Inequality sign. Less Than.
---	-----------------------------

$$1 < 2$$

$$9 < 15$$

Equal to

=	Equal Sign.
---	-------------

$$2 = 2$$

$$15 = 15$$

## Math / Geometry \_\_\_\_\_

### What is Geometry?

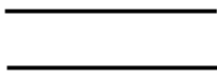
Geometry is basically math about shapes. This form of math deals with lines, angles, triangles, area, perimeter, and volume.

Geometry is a useful type of math to know and can be applied to everyday life. For example, if an individual wants new carpet instead of hardwood floors, geometry will help figure out how much material is needed for the job. Geometry can also help determine how much tile to use or how much lumber to cut.

### Vocabulary: The First Step

The first step in working geometry problems is understanding vocabulary. If a student can understand when to use 90 degrees and when to use 180 degrees, the hardest part of working geometry problems is done. On the GED there are no vocabulary questions, but there are problems in which an angle must be determined.

**Parallel** – Two straight lines that stay the same distance apart and never touch. Think about the northbound and southbound lanes of the interstate – the lanes are always running next to each other, but they never cross.



**Perpendicular** – Two straight lines that cross each other. Think about an intersection, or a red light. Where the two lines cross is called a **point**.

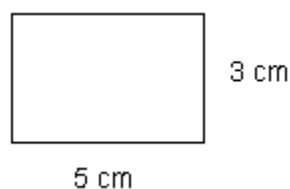
**Line Segments cross at an angle of 90°**



**Perimeter** – The distance around a shape, such as a home, pool, or yard. For example, if a rectangle is 3 feet wide and 5 feet long, the distance around that shape is  $5 + 5 + 3 + 3 = 16$  feet. Can be solved using addition or multiplication.

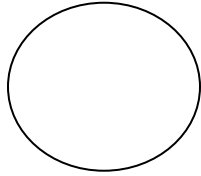
Remember the perimeter is the outside measurement.

$$3(2) + 5(2) = 6 + 10 = 16 \quad \text{or} \quad 3 + 3 + 5 + 5 = 16$$



## Math / Geometry \_\_\_\_\_

**Circumference of a circle** – Distance around a circle. Because circles don't have sides, the distance around a circle is called Circumference. Think of it as the perimeter of the circle.

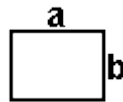


**Diameter of a circle** - the distance across a circle- from one side of the circle to the other

**Rectangle** – refers to a shape with two equal widths and two equal lengths. A rectangle is a 4-sided polygon with all right angles.



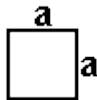
perimeter of a rectangle =  $2a + 2b$



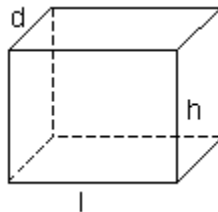
**Square** – refers to a shape with four equal sides. A square is a quadrilateral in which all sides are equal in length and form right angles.



Perimeter of a square =  $4a$



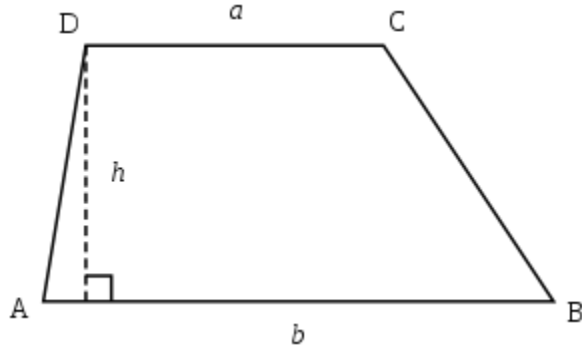
**Cube** – refers to a three dimensional shape where every side has an equal length. Think about a square shaped box, this is a cube. The difference between a square and a cube is that a square is a two dimensional shape drawn on a piece of paper, a cube is a three dimensional shape that can hold something, like a box.



## Math /Geometry \_\_\_\_\_

**Trapezoid** - a shape with one pair of *parallel sides*

Perimeter =  $a + b + c + d$



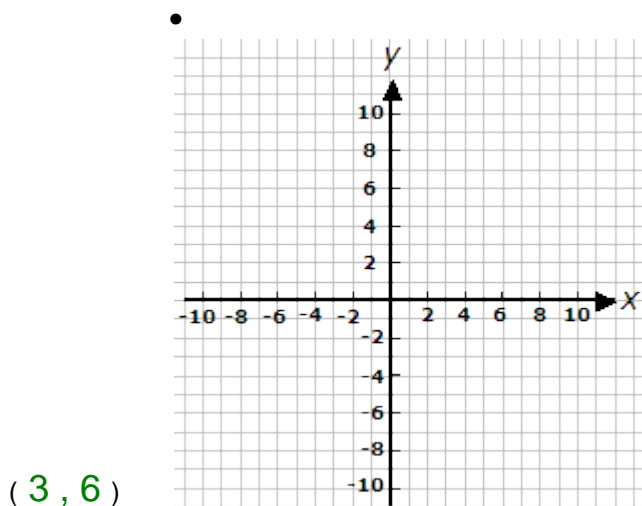
**Quadrilateral** – refers to any four sided polygon, such as a square or rectangle

**Coordinate Plane** – a plane containing 2 perpendicular axes identified as x, y

The first coordinate is always the horizontal position (x axis)

The second coordinate is the vertical position (y axis)

On the GED test a student is asked to find a point on the plane. The **x** axis is always identified first then the **y** axis.




## Math /Geometry Angles \_\_\_\_\_

### ANGLES

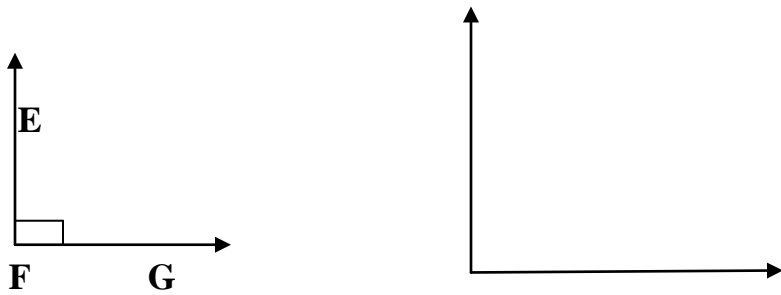
An angle is measured in degrees. A degree is a fraction of a circle. A circle is  $360^\circ$ . A straight line equals  $180^\circ$ . The “ $^\circ$ ” mark indicates the angle degree.

### Straight Angle

A straight angle equals  $180^\circ$  

An angle is formed by two rays joined at their endpoint. The  $\sphericalangle$  symbol is used to indicate an angle.

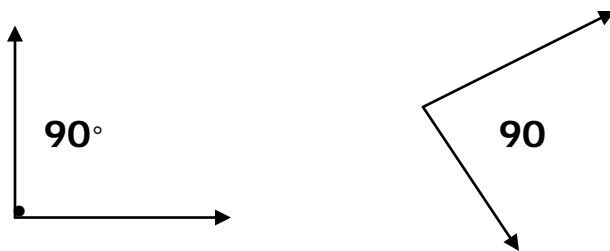
### Right Angle



**Both angles are  $90^\circ$**

A right angle is an angle measuring  $90^\circ$ . Two lines or line segments that meet at a right angle are said to be perpendicular.

Where two angles come together is called the vertex.

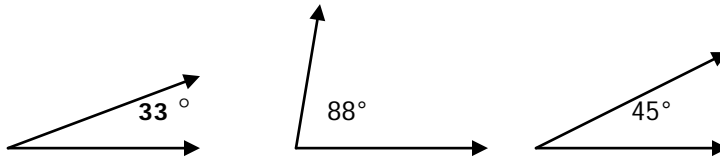


## Math / Geometry Angles \_\_\_\_\_

If a problem on the GED asks for missing measurement and the angle is acute, subtract the given measurement from  $90^\circ$  and you will get the missing angle.

### Acute Angles

An **acute angle** is an angle measuring between  $0^\circ$  and  $90^\circ$

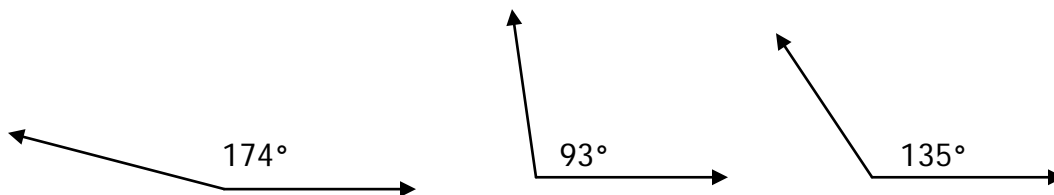


If a problem on the GED asks for missing measurement and the angle is acute, subtract the given measurement from  $90^\circ$  and you will get the missing angle.

### Obtuse Angles

An obtuse angle is an angle measuring between  $90^\circ$  and  $180^\circ$

The following angles are all **obtuse**.



If a problem on the GED asks for missing measurement and the angle is acute, subtract the given measurement from  $90^\circ$  and you will get the missing angle.

## Math /Geometry Angles \_\_\_\_\_

### Congruent angles

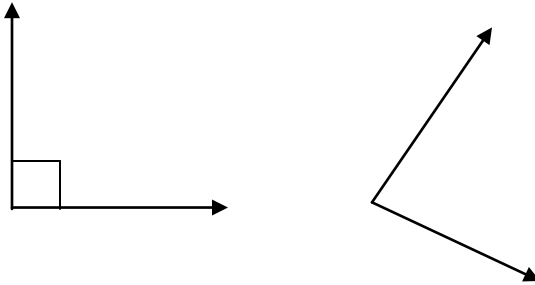
Two angles that have the **same size** and the **same shape** – **same measure**



### Supplementary Angles

Two angles are supplementary if their **sum is 180 degrees**

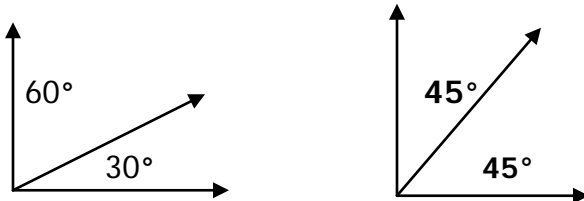
Two angles are called supplementary if their measures add up to  $180^\circ$ . These two  $90^\circ$  angles are supplementary because  $90^\circ + 90^\circ = 180^\circ$ . Both are right angles



### Complementary Angles

Two angles are complementary if their **sum is 90 degrees**.

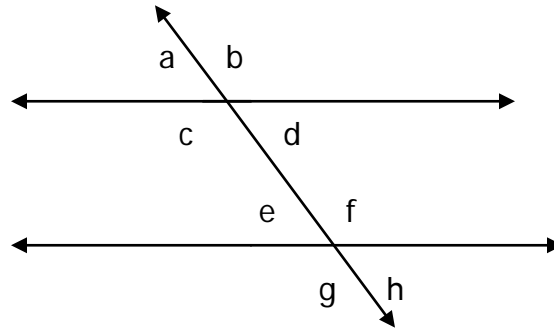
A pair of angles is called complementary if their measurements add up to  $90^\circ$ . These two angles are complementary, because  $60^\circ + 30^\circ = 90^\circ$ .



## Math /Geometry Angles \_\_\_\_\_

### Transversal

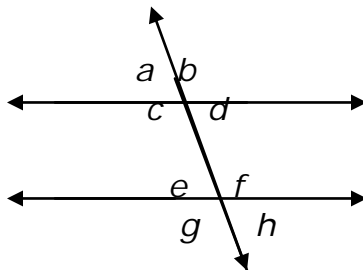
A line that intersects two other lines



These two lines are parallel, and are cut by another line, or transversal. Eight angles appear, in four corresponding pairs that have the same measure, so therefore are congruent or same size and same shape.

Example:

$\angle b$  and  $\angle f$  are corresponding pairs and have the same measure.



$\angle ab$  are supplementary angles; if added together the angles equal  $180^\circ$ .

**If  $\angle a$  measured  $45^\circ$ , what would  $\angle b$  measure?**

As in the question above, if asked for a missing measurement and the other measurement is given the answer can be found by using subtraction. Since the angle is known as an **supplementary** that gives a starting point to how the other angle measurement is determined.

If  $\angle a$  is  $45^\circ$  and is subtracted from  $180^\circ$ , the answer would be  $135^\circ$ . That is the measurement of angle  $b$

$\angle a$  and  $\angle d$  are **congruent angles**, as are  $\angle e$  and  $\angle h$

These angles are across from each other and have the same measurement. If one angle is given, the other can be determined by subtracting from  $180^\circ$ .

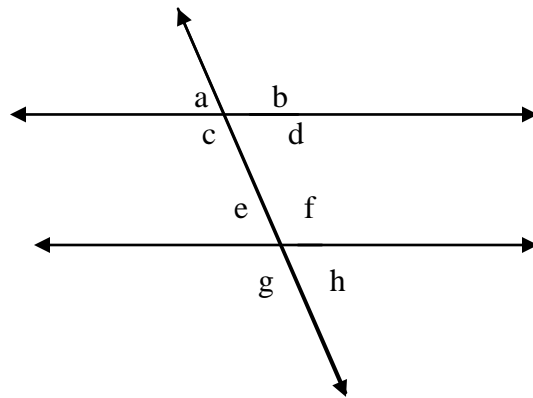
## Math /Geometry Angles \_\_\_\_\_

### Corresponding pairs of angles

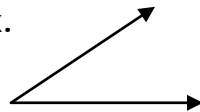
Two lines intersected by a transversal form corresponding pairs of angles. If the two lines are parallel, the corresponding pairs of angles are congruent, which means the angles have the same measurement.

If one angle is given, the other can be determined by subtracting from  $180^\circ$ .  
The following angles are corresponding pairs:

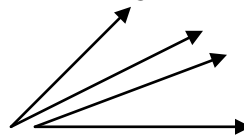
$$\angle a \angle e \quad \angle c \angle g \quad \angle b \angle f \quad \angle d \angle h$$



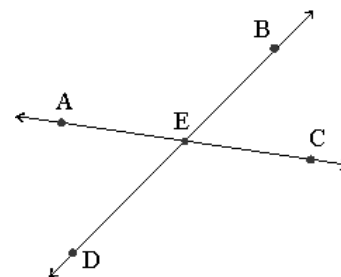
**Adjacent angles** are those angles that are **next to** each other. In the figures below, it shows that adjacent angles must share a common side and common vertex and must not overlap each other. **Adjacent angles share both a side and a vertex.**



Adjacent



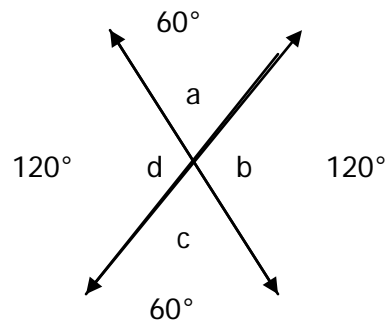
NOT Adjacent



## Math / Geometry Angles \_\_\_\_\_

### Vertical Angles

Vertical angles are pairs of angles formed by two intersecting lines. Vertical angles are *not* adjacent angles—they are opposite each other. Angles  $d$  and  $b$  are vertical angles. Vertical angles that are opposite each other have the same measure.



If angles  $d$  and  $b$  are vertical, name the other pair of vertical angles.

$\angle$  \_\_\_  $\angle$  \_\_\_

Name the supplementary angles above.

$\angle$  \_\_\_  $\angle$  \_\_\_

$\angle$  \_\_\_  $\angle$  \_\_\_

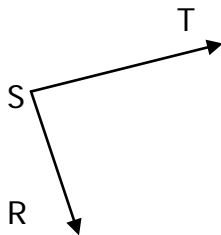
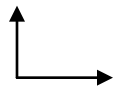
$\angle$  \_\_\_  $\angle$  \_\_\_

$\angle$  \_\_\_  $\angle$  \_\_\_

## Math /Geometry Angles \_\_\_\_\_

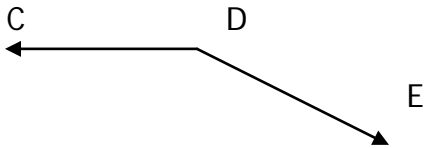
### REVIEW

1. Straight angle measures \_\_\_\_ degrees.
2. A  $45^\circ$  angle is called\_\_\_\_\_.
3. A *Right angle* measurement equals \_\_\_\_\_ degrees.
4. Another name for a  $135^\circ$  angle is \_\_\_\_\_.
5. A congruent angle has the same size and same shape.  
True \_\_\_\_\_ False \_\_\_\_\_
6. Vertical angles that are opposite have the same measure.  
True \_\_\_\_\_ False \_\_\_\_\_
7. An angle that is  $150^\circ$  is called an \_\_\_\_\_ angle.
8. Vertical angles are formed by two\_\_\_\_\_lines.
9. Vertical angles are adjacent True \_\_\_\_\_ False \_\_\_\_\_
10. Complementary angles measure \_\_\_\_\_ degrees.
11. Supplementary angles measure \_\_\_\_\_ degrees.
12. What is one way that you can determine if an angle is a right angle? Draw a right angle.
13. Define adjacent.
14. Identify the angle below as an *acute*, *obtuse* or *right* angle.



15. Give the angle measurement for the above  $\angle RST$ 
  - a.  $105^\circ$
  - b.  $90^\circ$
  - c.  $15^\circ$

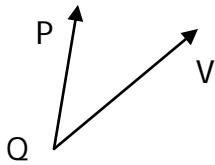
16. Identify the angle below as an acute, obtuse or right angle.



17. Give the angle measurement for the above  $\angle CDE$

- a.  $65^\circ$
- b.  $174^\circ$
- c.  $90^\circ$

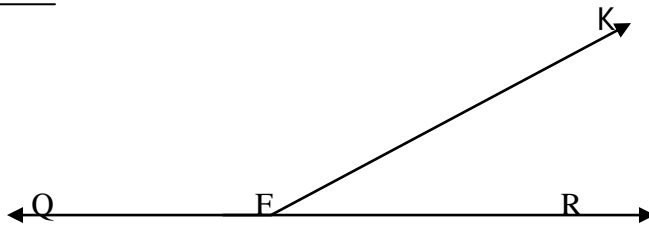
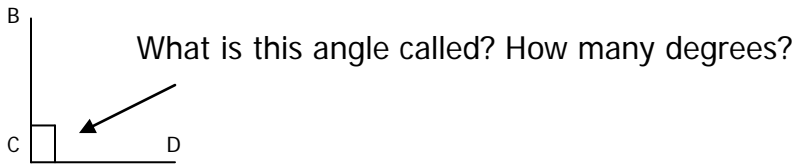
18. Identify the angle below as an acute, obtuse or right angle.



19. Give the angle measurement for the above  $\angle PQV$

- a.  $45^\circ$
- b.  $90^\circ$
- c.  $135^\circ$

20.

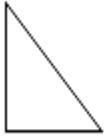


21. If  $\angle KFR$  is  $45^\circ$  degrees, what is the measurement of  $\angle QFK$ ?

## Math / Geometry Angles \_\_\_\_\_

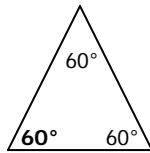
**Triangle-** A 3-sided polygon; sum of internal angles equals  $180^\circ$

Perimeter =  $a + b + c$

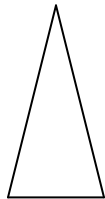


**Equilateral Triangle** - A triangle with all three sides of equal length; each internal angle =  $60^\circ$

Perimeter =  $3a$

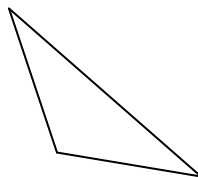


**Isosceles Triangle-** A triangle with two equal length sides; and two equal internal angles; Perimeter =  $2a + b$



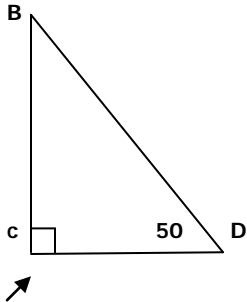
**Scalene Triangle-** A triangle with all three sides with different lengths

Perimeter =  $a + b + c$



## Math / Geometry Angles \_\_\_\_\_

### Identifying a right triangle



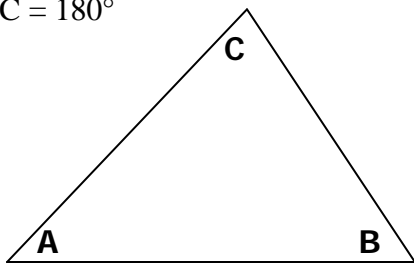
To get the inside measurement of right triangle know that the box indicates that particular angle will be  $90^\circ$

$$\angle C = 90^\circ + \angle D = 50^\circ \text{ total of } \angle C \text{ and } \angle D = 140^\circ$$

$$180^\circ \text{ (inside measurement)} - 140^\circ = \angle B = 40^\circ$$

**In a triangle, the three angles always add to  $180^\circ$ :**

$$A + B + C = 180^\circ$$

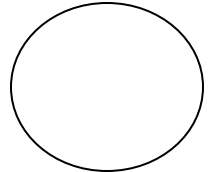


## Math / Geometry Circles \_\_\_\_\_

**Understanding vocabulary and symbols is the key to circumference and area of a circle.**

A circle is measured in degrees. The distance around a circle is ***360°***

All points on the circumference of a circle are equidistant from its center.



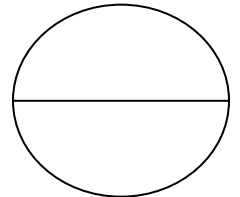
Radius: r

Diameter: d

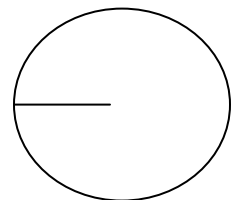
Circumference: C

The perimeter of a circle is more commonly known as the ***circumference***.

The longest distance across the center of the circle is called the **diameter**.  
The diameter = 2 x radius of circle



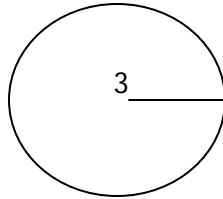
The **radius** is the distance from the center of the circle to any point.  
The radius is one half the diameter.



## Math / Geometry Circles \_\_\_\_\_

**Area of a Circle**

$$\text{area} = \pi r^2$$



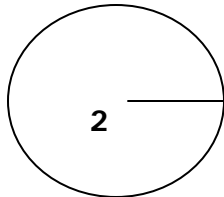
To find the area of a circle the formula  $\pi r^2$  is used.

pi is this symbol  $\pi$  which breaks down to the value of 3.14

$\pi$  is multiplied ( X ) by the radius<sup>2</sup> (n x n)

$n^2$  – when the number 2 is seen above the number it means to multiply that number times itself or squared

**Guided Practice:**



$$\text{Area} = \pi r^2$$

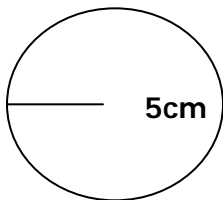
**Breakdown the problem**

**Step 1: Radius = 2 so that translates to 2 x 2 because the problem states it's  $r^2$**

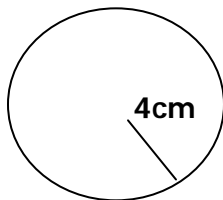
**Step 2: Pi = 3.14**

**Step 3: Multiply pi x radius squared =**

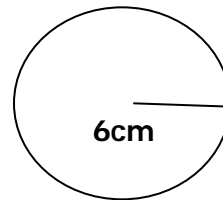
Solve for the area of the circle:  $\text{area} = \pi r^2$



**Area=**



**Area**



**Area**

## Math / Geometry Circles \_\_\_\_\_

### Circumference of a Circle

The circumference is the distance around the circle **circumference of circle**

To find the circumference of a circle two formulas can be used:

REMEMBER THE VOCABULARY:

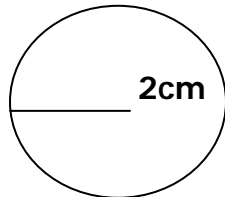
**Diameter** is the **distance across** the circle.

The **radius** is **one half the diameter of the circle**.

$$\pi = \text{pi or } 3.14$$

$\pi d$  which translates to  $\text{PI}(3.14) \times \text{diameter}$

$2\pi r$  which translates to  $2 \times \text{PI}(3.14) \times \text{radius}$

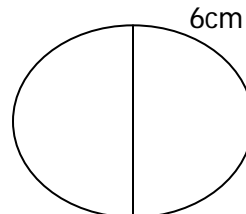
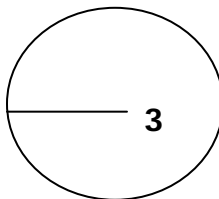
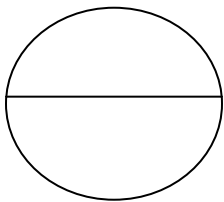


Using the radius number in the circle above, solve using both formulas:

$$\pi d =$$

$$2\pi r =$$

Using the formulas above, find the circumference of the following circles:

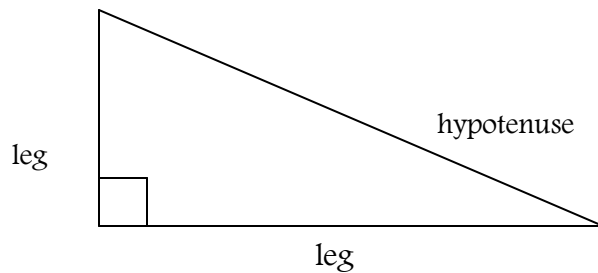


## Math / Algebra \_\_\_\_\_

**Pythagorean Theorem** – used to find the lengths of the sides of any right triangle. Using this theorem requires knowledge of *exponents* and *square roots*. Even today this formula is used by land surveyors, carpenters, and woodworkers.

**In a right angled triangle the square of the hypotenuse is equal to the sum of the squares of the other two sides.**

The Pythagorean Theorem uses the formula  $a^2 + b^2 = c^2$



The longest leg of the triangle, **hypotenuse**, is identified as  $c^2$

The two shorter sides are usually called "legs."

**Exponents** -- any number multiplied by itself  $2^2 = 2 \times 2$

$$1^2 = 1 \quad \sqrt{1} = 1$$

$$2^2 = 4 \quad \sqrt{4} = 2$$

$$3^2 = 9 \quad \sqrt{9} = 3$$

$$4^2 = 16 \quad \sqrt{16} = 4$$

$$5^2 = 25 \quad \sqrt{25} = 5$$

**Any number raised to the power of two can be understood by using a square. The squares are equal**

$\sqrt{\quad}$  **This is the square root symbol. It means the  $\sqrt{25} = 5$ ;  $5 \times 5 = 25$**

## Math / Algebra \_\_\_\_\_

**Using the Pythagorean relationship formula is a step by step process. Knowing what calculator keys to use is important.**

$a^2 + b^2 = c^2$  Substitute the values into the formula and perform the calculations. Practicing substitutions is one way to get better using this formula.

A student must know both the  $x^2$  key and the  $\sqrt{\quad}$

Remember squaring a number means to multiply it by itself.

$5^2$  means  $5 \times 5$

**STEP 1: enter the number needing to be squared 5**

**STEP 2: Press the  $x^2$  key**

**STEP 3: Answer 25**

$$25^2$$

$$6^2$$

$$15^2$$

$$36^2$$

$$9^2$$

$$17^2$$

$$10^2$$

$$13^2$$

Practicing the  $\sqrt{\quad}$  square root button will also help with formula. This is basically using the  $x^2$  key but the shift button will be added to change from a squared number to square root.

STEP 1: Enter number 100

STEP 2: Press the **shift** key

STEP 3: Press the  $\sqrt{\quad}$  button (it is the same as the  $x^2$  key)

STEP 4: Answer 100

$$\sqrt{81}$$

$$\sqrt{225}$$

$$\sqrt{169}$$

$$\sqrt{100}$$

$$\sqrt{16}$$

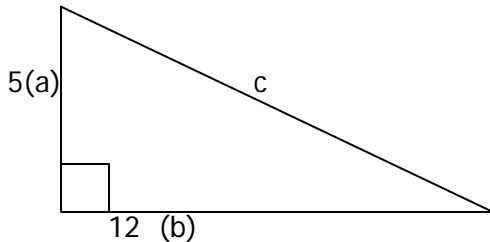
$$\sqrt{1296}$$

$$\sqrt{625}$$

$$\sqrt{36}$$

## Math / Algebra \_\_\_\_\_

On the GED test, problems will not be straight forward as looking at a right triangle that is identified as leg, leg, hypotenuse, but rather in word problem form.  $a^2 + b^2 = c^2$



**Step 1: identify formula to use; since the hypotenuse( $c^2$ ) is missing the following formula is used**

**Step 2: substitute numbers for letters:**

$$a^2 + b^2 = c^2$$
$$5^2 + 12^2 = c^2$$

$$5 \times 5 + 12 \times 12 = c^2$$

$$25 + 144 = 169 = c^2$$

$$\sqrt{169} = c^2$$

$$13 = c^2$$

**CALCULATOR:** Entering the numbers above practice using two new keys. Both the  $x^2$  and the  $\sqrt{\quad}$  ( square root ) key :  $a^2 + b^2 = c^2$

1. Enter the following numbers:
2. Enter 5 and press the  $x^2$  key
3. Press + (add)
4. Enter 12 and press  $x^2$
5. Press = equal
6. Press *shift* and  $\sqrt{\quad}$  square root key (this is the same button as the  $x^2$  key but will change when the *shift key* is pressed. What is the answer? Is it the same?

Math / Algebra \_\_\_\_\_

If the legs of the triangle above are 6 and 5, what is the hypotenuse?

$$a^2 + b^2 = c^2$$

$$5^2 + 6^2 = c^2$$

$$25 + 36 = c^2$$

$$61 = c^2$$

$$\sqrt{61} = 7.8$$

$$c^2 = 7.8$$

In the multiple choice problem below, solve for the hypotenuse.

$$a^2 + b^2 = c^2$$

$$15^2 + 17^2 = c^2$$

a. 26.67

b. 29.67

c. 22.67

d. 23.45

## Math / Algebra \_\_\_\_\_

In a Pythagorean Theorem problem if the hypotenuse is given, the formula changes to a subtraction problem.

When entering the numbers into the calculator, the hypotenuse number is entered first then hit subtract (minus key)

When looking for the hypotenuse of the triangle, addition is used to solve. When the hypotenuse is given and a leg is missing, subtraction is used to solve.

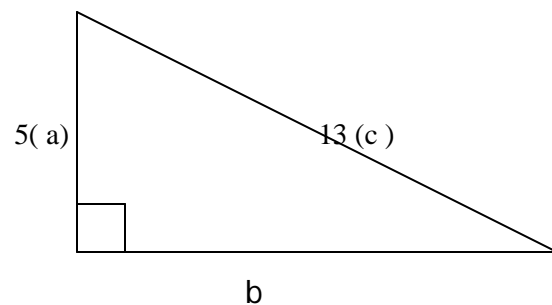
$$c^2 - a^2 = b^2$$

$$13^2 - 5^2 = b^2$$

$$169 - 25 = 144$$

$$\sqrt{144} = 12$$

$$b^2 = 12$$



**Calculator practice: enter the following numbers. Using the calculator to solve these problems just made life simple.**

1. Enter 13 and press the  $X^2$  key
2. Press - (subtract)
3. Enter 5 and press  $X^2$
4. Press equal =
5. Press *shift* and  $\sqrt{\quad}$  *square root key*

This is the same button as the  $X^2$  key but will change when the shift key is pressed. Is the answer the same?

**Math / Algebra** \_\_\_\_\_

**Pythagorean Relationship**

**In the multiple choice problem below, solve for a leg.**

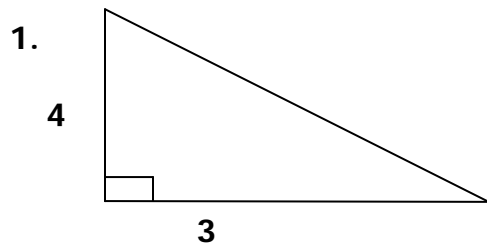
$$c^2 - a^2 = b^2$$

$$12^2 - 6^2 = b^2$$

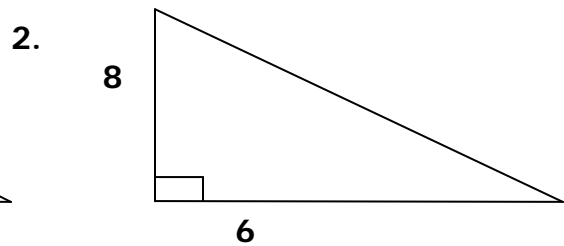
- a. .748
- b. 74.8
- c. 7.48
- d. 748.

**Use the calculator to practice the steps for the problems below.  
Write the problem out to be sure the correct formula is used**

**Guided practice:**



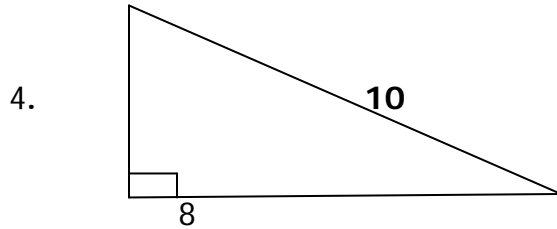
\_\_\_\_\_



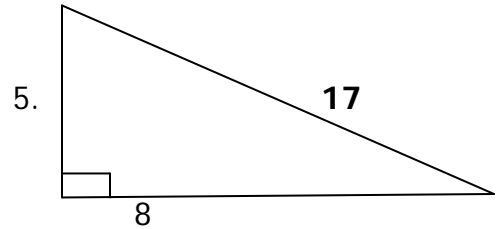
\_\_\_\_\_

**Math / Algebra** \_\_\_\_\_

3. John wants load his mower on the back of a trailer. The trailer height is 3 feet high and the trailer is 4 feet long. How long would the ramp need to be to load the mower?



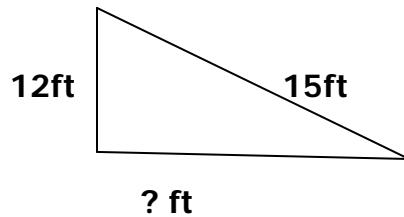
\_\_\_\_\_



\_\_\_\_\_

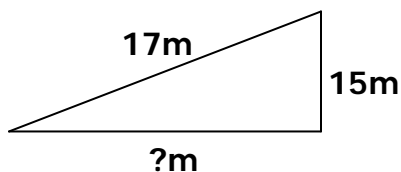
6. In a right triangle, the hypotenuse – is 12 inches long. One leg of the triangle is 5 inches long. How long is the missing leg?

7. Mike is putting a temporary service on his house and needs to anchor it down. If the pole anchored in the ground is 12 feet high and the cable to anchor with is 15 feet long, how far from the temporary service does the cable need to be anchored to be secure?



\_\_\_\_\_ ft

8. Frank and Jen are going to work on the farm. Frank wants to take a short cut of 17m across the farm to save time when moving materials for fencing. Jen tells Frank walking across the back fence is faster. If the side fence is 15 m, how many meters is the back fence?



\_\_\_\_\_m

## Math / Algebra \_\_\_\_\_

Adding Signed Numbers

**When the signs are the SAME, ADD and carry the sign to the answer.**

Ex:  $-2 + -9 = -11$

Ex:  $3 + 4 = 7$

**When the signs are DIFFERENT, SUBTRACT and carry the sign of the LARGER number to the answer.**

Ex:  $-10 + 8 = -2$

Ex:  $10 + -8 = 2$

*Guided Practice:*

1.  $-5 + -8 =$

2.  $-19 + 4 =$

3.  $-18 + 5 =$

4.  $-12 + -32 =$

5.  $-57 + -10 =$

6.  $16 + -54 =$

7.  $-16 + -79 =$

8.  $271 + -26 =$

## Math / Algebra \_\_\_\_\_

### Signed Numbers Subtracting

Remember to: **KEEP IT, CHANGE IT, SWITCH IT**

Example:  $-6 - 4 =$

Rewrite the problem, following the KEEP IT, CHANGE IT, SWITCH IT  
Keep the first number the same.

1. Change the subtraction sign to an addition sign.
2. Switch the sign of the last number.

So, the problem changes from:  $-6 - 4 =$  To:  $-6 + -4 =$  since both numbers are negative, move left on the number line the answer is -10

Solve this problem using the addition rules  $6 + 4 = 10$

**Calculator:** If the number is negative, enter the number in the calculator then press the +/- key on the calculator.  $(-8)-72 = -80$  calculator:  $8 +/- - 72 =$

Remember the **a/bc** key used to solve fraction problems? This key +/- will help solve signed number problems.

A parenthesis can be put around the negative number to distinguish the negative from subtraction.

**If there is a minus and a negative number, the sign of the second number automatically changes to a positive. In algebra this term is called a double negative  $(-15) - (-28)$  changes to  $(-15) + (28)$ .**

Enter the following in the calculator:  $15 +/-$  (plus/minus)  $+$  (addition)  $28 =$  equals  
The answer is 13

Guided Practice:

1.  $-8 - 62 =$

2.  $-25 - 4 =$

3.  $-15 - -22 =$

4.  $34 - -5 =$

5.  $- 67 - 36 =$

## Math / Algebra \_\_\_\_\_

### Signed Numbers Multiplication and Division

Multiplication and Division of signed numbers share the same rules.

$$\text{POSITIVE} \times \text{POSITIVE} = \text{POSITIVE}$$

$$\text{negative} \times \text{negative} = \text{POSITIVE}$$

$$\text{POSITIVE} \times \text{negative} = \text{negative}$$

$$2 \times 2 = 4$$

$$-2 \times -2 = 4$$

$$-2 \times 2 = -4$$

$$\text{POSITIVE} \div \text{positive} = \text{positive}$$

$$\text{negative} \div \text{negative} = \text{POSITIVE}$$

$$\text{POSITIVE} \div \text{negative} = \text{negative}$$

$$9 \div 3 = 3$$

$$-9 \div -3 = 3$$

$$-9 \div 3 = -3$$

#### **HINT:**

When the signs are the **SAME** the answer is **POSITIVE**

When the signs are **DIFFERENT** the answer is **NEGATIVE**

#### **Guided Practice:**

$$1. -2 \times -6 =$$

$$2. -3 \times -10 =$$

$$3. -9 \times 12 =$$

$$4. 12 \times -4 =$$

$$5. 20 \times -16 =$$

$$6. -3 \times -15 =$$

#### **Independent Practice: Mixed practice**

$$1. -10 + -16 =$$

$$2. -221 - -16 =$$

$$3. 29 + -44 =$$

$$4. 5 \times -4 =$$

$$5. -76 - -15 =$$

$$6. -95 + -16 =$$

$$7. 12 - -10 =$$

$$8. -46 + 13 =$$

$$9. -74 \times -10 =$$

## Math / Algebra \_\_\_\_\_

### Algebraic Equations

Algebra is math that uses both numbers and letters to solve problems. Usually in algebra problems the numerical value of an unknown number, called a variable, is what is needed. Algebra problems are solved by following a specific set of rules.

**THE GOAL OF ALGEBRA:** The goal in algebra is to '**isolate the variable**', or get the variable by itself, so that you can solve for it. A variable is an unknown number. Any letter can represent the variable; a, p, x, y, t

There are a series of steps and all of these steps work toward the goal of getting the variable by itself so that its value can be found.

*The equal sign separates the equation sides.* So when the term "whatever you do to one side of the equation, you must do to the other side of the equation" means whatever you do to one side of the *equal sign*, must be done to the other side of the *equal sign*.

#### One Step Algebra Problems:

Addition:      **$x + 12 = 24$**

What does this problem or equation say?

This equation says, "**What number plus 12 equals 24?**"

**The goal is to get the variable, x, by itself so one can solve for its value.**

Write down the equation and each step as it is being solved.

## Algebraic Equations

**Problem:**  $x + 12 = 24$

**Step 1:** The 12 must be removed from the left side of the equation to isolate the X . To do this, the opposite math operation is used.

In this case, this is an addition problem. The 12 is being *added*, so in order to isolate the variable, the opposite operation must be done. The next step is to **subtract** the twelve from the left side of the equation

$$X + 12 - 12 = 24$$

**Step 2:** What ever is done to one side of the equation must be done to the other side of the equation. The equal sign separates the equation sides. Subtract 12 from the *right side* of the equation which means the 12 is subtracted from the 24.

1.  $X + 12 = 24$
2.  $X + 12 - 12 = 24 - 12$

**Step 3:**

**Check the answer:** To check the answer put the 12 back where the variable **x** was making the problem read  $12 + 12 = 24$ .

Guided Practice:

1.  $X + 33 = 82$

2.  $c + 100 = 126$

3.  $56 + x = 56$

4.  $25 + c = 87$

5.  $a + 35 = 85$

6.  $27 + z = 87$

## Math / Algebra \_\_\_\_\_

### Algebraic Equations

**Equation:**  $x - 10 = 36$

This equation reads, "What number minus ten equals 36?"

The goal is to get the variable, X by itself so you can solve for its value. To do this, the opposite math operation is used.

In this case, the 10 is being *subtracted*, so the opposite of subtraction is *addition*; *add* 10 to both sides of the equals sign.

**Step 1:** The 10 must be removed from the left side of the equation to isolate the X; to do this, the opposite math operation is used.

In this case, this is a subtraction problem. The 10 is being *subtracted*, so in order to isolate the variable, the opposite operation must be done. The next step is to *add the* ten to the left side of the equation

$$X - 10 + 10 = 36$$

**Step 2:** What ever is done to one side of the equation must be done to the other side of the equation. The equal sign separates the equation sides. Add 10 to the *right side* of the equation which means the 10 is added to the 36 on the right side of the equation.

1.  $X - 10 = 36$
2.  $X - 10 + 10 = 36 + 10$

**Step 3:**

**Check the answer:** To check the answer put the 12 back where the variable **x** was making the problem read  $46 - 10 = 36$ .

## Math /Algebra \_\_\_\_\_

### Guided Practice:

1.  $x - 55 = 15$

2.  $n - 87 = 8$

3.  $q - 50 = 551$

4.  $c - 64 = 48$

5.  $S - 12 = 49$

6.  $Z - 45 = 225$

7.  $x - 95 = 1$

8.  $p - 67 = 125$

9.  $q - 877 = 45$

## Math / Algebra \_\_\_\_\_

### Algebraic Equations

**Multiplication:**  $5x = 35$

**Equation:** *“Five times what number equals 35?”*

The goal is to get the variable,  $x$ , solve for its value.

In this problem, the variable  $x$  is being multiplied by 5, so the opposite math operation is needed. Anytime a variable is next to a number it means to multiply.

The opposition of multiplication is division.

Divide the problem by 5 on each side of the equals sign; this isolates the variable. Divide  $5x$  by 5, this will cancel the 5's and leave  $x$  by itself.

Then, divide 35 by 5 to find the answer.  
35 divided by 5 is 7

Remember to do each step:

$$5x = 35$$

Do the opposite operation of multiplication

Divide both sides by 5  $\frac{5x}{5} = \frac{35}{5}$

**Check Work:** To check work, take the answer and put it back in the variable's place. For example, in this problem:  $5x = 35$  answer = 7  
Check  $5(7) = 35$

Put 7 back in to the problem, making it  $5 \times 7 = 35$

This is a true statement, so your answer is correct

## Math / Algebra \_\_\_\_\_

### Guided Practice:

1.  $6x = 666$

2.  $90x = 360$

3.  $50 = 10a$

### Practice:

1.  $627 = 3N$

2.  $5c = 15$

3.  $7p = 49$

4.  $81 = 9d$

5.  $88 = 11p$

## Math / Algebra \_\_\_\_\_

The Algebra problems on the GED require some understanding of simple algebraic equations. Understanding how to solve will ensure a successful outcome.

### Order of Operation:

The order of operation will help in solving problems that use parenthesis. Using the phrase **Please Excuse My Dear Aunt Sally** will help in solving these types of algebra problems. Solve in this order.

**Parenthesis** ( ) numbers set in parenthesis must be solved first

**Exponents** any number multiplied by itself

$$2^2 = 2 \times 2 \quad 2^3 = 2 \times 2 \times 2 \quad 2^4 = 2 \times 2 \times 2 \times 2$$

**Multiplication** - multiply

**Division** - divide

**Addition** - add

**Subtraction** - subtract

**NOTE:** Two calculator keys to practice are  $x^2$  and  $x^3$

The  $x^2$  key was used when doing Pythagorean Relationship problems. The  $x^2$  is identified on the calculator. Enter the number 5 and press  $x^2$ . This will give the squared number.

If a number is to the third power  $x^3$ , enter the number 5, press the shift key, then press the arrow key (the  $x^3$  is written in yellow above this key and is next to the +/- key). The answer is 125.

## Math / Algebra \_\_\_\_\_

Use this phrase to solve: Please Excuse My Dear Aunt Sally

Parenthesis  
Exponents  
Multiplication  
Division  
Addition  
Subtraction

**Example 1:**

$$(2 \times 4)^2 \times (5 - 1) + 1 =$$

Step 1: *parenthesis*:  $(2 \times 4)^2 \times (5 - 1) + 1 =$

Step 2: Identify Exponents:  $(8)^2 \times (4) + 1 =$

Step 3: Solve exponents:  $8^2 = 8 \times 8 = 64$

$$64 \times 4 + 1 =$$

Step 4: Identify and solve Multiplication and /or *Division* :  $64 \times 4 =$

Step 5: Identify and solve any Addition and /or *Subtraction* :  $256 + 1$

Step 6: answer 257

$$(2 \times 4)^2 \times (5 - 1) + 1 =$$

$$(2 \times 4)^2 \times (5 - 1) + 1 =$$

$$(8)^2 \times (4) + 1 =$$

$$64 \times 4 + 1 =$$

$$256 + 1 = 257$$

## Math / Algebra \_\_\_\_\_

Example 2:  $(2 + 9) - (3 \times 1) =$   
 $11 - 3 = 8$

**Remember to solve the problem using this order:**

**P**arenthesis

**E**xponents

**M**ultiplication

**D**ivision

**A**ddition

**S**ubtraction

**Guided Practice:**

1.  $(10 + 6) (4 \times 3)^2 =$

2.  $(5-2)^3 \times (9+1) =$

3.  $(13 - 5) - (2 \times 2) =$

4.  $(3 \times 1)^2 + (5 + 6) =$

5.  $(10 - 5)(1 \times 2)^3 + 15 - 13 =$

6.  $(2 \times 2)^3 + (15-10)^2 - 25 =$

7.  $7(2) + (5 - 3) - 8 =$

## Math /Algebra \_\_\_\_\_

### Algebraic equations and substitutions

Substitution problems require for every letter in a given problem that variable will be substituted with a number. Remember to follow the process. P-E-M-D-A-S

**Example 1:**       $X + 4 = 7$                        $X = 3$

Substitute the number **3** where ever there is a variable; in this case an **X** is used

$$X + 4 = 7$$

$$3 + 4 = 7$$

If there is more than one variable to substitute, the number will be assigned to that particular variable.

**Example 2:**       $b + 3(t - 4) = 20$                        $b = 7$      $t = 6$

**Substitute the variable "b" with the number "7" and the variable "t " with the number 6 then solve**

**Step 1: write down the problem**       $b + 3(t - 4) = 20$                        $b = 7$      $t = 6$

**Step 2: substitute the numbers for the letters**       $7 + 3(6 - 4) = 20$

**Step 3: follow the order of operation rules**                       $10 (2) = 20$

1.  $(n + 4)^2 - (3 + 2)(n) =$                        $n = 4$   
a. 44    for every n in the problem; substitute n with  
b. 69    the number 4  
c. 59  
d. 11

2.  $(p + 65)(4-2) + p =$                        $p = 10$   
a. 79    for every p in the problem; substitute with  
b. 300    the number 10  
c. 100  
d. 160

## Math / Algebra \_\_\_\_\_

### Algebraic equations and substitutions

3.  $15 + (16 + 2)^2 =$

4.  $y + z + 2$                       substitute:  $y = -6, z = 5$

5.  $z \div 6 + x + x - 5$               substitute:  $x = 1, z = 6$

6.  $\sqrt{p} + q(4 - 2)$                    $p = 25 ; q = 5$

**Some algebra problems are written in word problem format.**

6. Jim weighs 150 more pounds than his wife. What algebraic equation might represent this:

- a.  $150n$
- b.  $150 - n$
- c.  $150 + n$
- d.  $\frac{150}{n}$

# **GED Bridge**

## **Level 4**

### **Language Arts**

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## GED Language Arts Writing

The GED Language Arts Writing is divided into two separate tests. The first test is a series of fifty multiple choice questions that require the identification of correct sentence structure, language usage, and sentence and paragraph sequence and matching. Questions are based on a given passage and require careful reading of the passage, questions, and possible answers. The test taker must read these selections very deliberately as it is very easy to substitute words and not clearly understand the questions.

The second portion of the test is an essay that is written based on a prompt provided on the test. The essay must be written on the topic given.. Failure to do so will result in a score of zero. A score of two is the required passing score. This score is derived from two readers and is based on the requirements of a rubric.

## Sentence Structure

### Instruction

#### **Sentences and Sentence Fragments**

*A complete Sentence must have a subject (noun), verb and express a complete thought or idea. All three criteria must be evident in order for a sentence to be complete. It is essential that students are able to determine a complete sentence from an incomplete sentence when making decisions regarding comma placement.*

Examples:

I am happy because I know you will earn your GED. (COMPLETE THOUGHT, VERB and NOUN)

Because you will earn your GED. (INCOMPLETE THOUGHT / FRAGMENT)

You will earn your GED. (COMPLETE THOUGHT "You" (subject) "earn" (verb))

### *Practice*

*Directions: Choose the best answer to each question.*

(1) In the school year 2007-2008 over 16, 000 people earned a GED in the state of Tennessee. (2) Since you can make more money with a diploma.

(3) Many students understand the need to take the time to go back to school to study for the GED. (4) Adult education services in every county in Tennessee and most offer day and evening classes. (5) The classes free and the materials are also provided free of charge. (6) Those students a GED can expect to earn more than 15% more than a worker without a degree. (7) We know that the 16,000 people who earned their GED will be more prepared to enter the job market and find and keep a good job.

1. Sentence 1: **In the school year 2007-2008 over 16,000 people earned a GED in the state of Tennessee.**

*What correction should be made to sentence 1?*

1. No correction is necessary
2. Insert a comma after GED
3. Insert a period after GED
4. Insert the word "by" after GED

2. Sentences 2 and 3: **Since you can make more money with a diploma. Many students understand the need to take the time to go back to school to study for the GED.**

*Which is the best way to write the underlined part of the text?*

1. diploma and many students understand
2. diploma, many students understand
3. diploma so many students understand
4. diploma's many students understand

3. Sentence 4: **Adult education services in every county in Tennessee and most offer day and evening classes.**

*What correction should be made to sentence 3?*

1. Insert a comma after services
2. Replace and with because
3. Insert are offered after services
4. No correction is necessary

**Sentence 5: The classes free and the materials are also provided free of charge.**

*What correction should be made to sentence 4?*

1. Remove provided
2. Insert are after classes
3. Insert a comma after free
4. No correction is necessary

4. Sentence 6: **Those students a GED can expect to earn more than 15% more than a worker without a degree.**

1. Replace can with are
2. Insert receiving after students
3. Insert a comma after GED
4. No correction is necessary

## Compound Sentences

### Instruction

### Coordinating Conjunctions

*Another name for a complete sentence is an independent clause. This term "independent" means that it can stand alone... in other words... a complete sentence. A compound sentence is two independent clauses COMBINED using words such as: and, yet, but, for, or, nor, so. Read the two clauses to determine which combining word to use. In other words; which combining word makes the most sense?*

#### Examples:

The people in our neighborhood decided to have a yard sale. They will have a party afterward. (2 independent clauses)

The people in our neighborhood decided to have a yard sale and they will have a party afterward. (Combined independent clauses)

**DO NOT USE A COMMA WHEN COMBINING TWO INDEPENDENT CLAUSES.**

## Complex Sentences

### Instruction

#### **Subordinating Conjunctions**

*A subordinating clause is different from an independent clause in that it does not express a complete thought. It does have a subject and verb. In other words, it is a sentence fragment. A subordinating clause (fragment) and an independent clause (complete sentence) can be joined together to create a COMPLEX sentence. A complex sentence is a dependent and independent clause joined together using words such as: because, as, since, although, even, if, unless, so, unless, after, before, once, until, when, while*

*Read the two clauses to determine which combining word to use. In other words; which combining word makes the most sense?*

**IF A SUBORDINATING CLAUSE (INCOMPLETE SENTENCE) COMES AT THE BEGINNING OF A SENTENCE, PLACE A COMMA AFTER THE CLAUSE. IF IT COMES AT THE END OF THE SENTENCE DO NOT USE A COMMA.**

#### **Examples:**

**You are my friend because I can trust you.**

**"because" Sub conjunction/clause at the end of the sentence**

**Because I can trust you, you are my friend.**

**"Because" Sub conjunction/clause at the beginning of the sentence**

## Practice

(1) The main reason most people go on a vacation is to relax. (2) So that parents can use this time to escape from many of their family responsibilities there are many locations that offer special activities for children. (3) Even though this kind of service is expensive. (4) Many busy parents think it is well worth the price. (5) There are even cruises that offer all day activities for children. (6) While some even offer special night activities, shows, and dinners for kids only. (7) Many of the counselors employed to entertain the children are teachers who do this as a summer job. (8) A way to earn extra money. (9) This may be the kind of vacation you are looking for. (10) You need a relaxing get away. You want your children to have fun too.

*Directions: Choose the best answer to each question.*

1. Sentences 2: **So that parents can use this time to escape from many of their family responsibilities there are many locations that offer special activities for children.**

*What correction should be made to sentence 2?*

- 1 No correction is necessary
- 2 Insert a comma after responsibilities
- 3 Insert a period after responsibilities
- 4 Insert the word "and" after responsibilities

2. Sentences 3 and 4: **Even though this kind of service is expensive. Many busy parents think it is well worth the price.**

*What correction should be made to sentence 3?*

1. expensive and many
2. expensive, many
3. expensive if
4. no correction is necessary

3. Sentences 5 and 6: **There are even cruises that offer all day activities for children. While some even offer special night activities, shows, and dinners for kids only.**

*Which is the best way to write the underlined part of the text?*

1. children and while
2. children, while
3. children while
5. No correction is necessary

4. Sentences 7 and 8: **Many of the counselors employed to entertain the children are teachers who do this as a summer job. A way to earn extra money.**

*Which is the best way to write the underlined part of the text?*

1. job, a way
2. job's a way
3. job and
4. no correction is necessary

5. Sentences 9 and 10: **This may be the kind of vacation you are looking for. You need a relaxing get away and you want your children to have fun too.**

*Which is the best way to write the underlined part of the text?*

1. for and you
2. for if you
3. for, if
4. no correction is necessary

## Run-ons and Comma Splices

*A run-on sentence occurs when two complete sentences are joined together without using the correct punctuation (comma) and connecting words. In others words, two sentences are "running together".*

### Examples:

**We are eating at the new restaurant tonight decide want you are going to wear.**

**#1 We are eating at the new restaurant tonight. Decide want you are going to wear. (two sentences)**

**#2 We are eating at the new restaurant tonight so decide want you are going to wear.. (joined by a connecting word and a comma)**

**#3 Since we are eating at the new restaurant tonight, decide what you are going to wear. ( changed to dependent clause, conjunction, and comma.)**

**Our new boss is working very hard he is not making good decisions.**

**#1 Our new boss is working very hard. He is not making good decisions.  
(two sentences)**

**#2 Our new boss is working very hard but hard, but he is not making good decisions. ( joined by a connecting word and a comma)**

**#3 Even though our new boss is working very hard, he is not making good decisions. ( changed to dependent clause, conjunction, and comma.)**

## *Parallel Structure*

*When writing a sentence make sure that the words are in the same form as well as tense. This makes a sentence more readable.*

### **Examples:**

**#1 We decided to go to dinner, go to a movie, and are having dessert at my home afterward. (phrases do not match)**

**We decided to go to eat, go to a movie, and go to my home for dessert afterward. (match phrases- to go...)**

**#2 We are helping my mother dust, vacuum, and are mopping the floors.  
( words do not match in form)**

**We are helping my mother dust, vacuum, and mop.  
(single words match in a series)**

## Practice

**(1) Playing basketball is a favorite sport for many teenagers. (2) One of the great things about basketball is that it doesn't require a lot of equipment, space or needing too many people to play. (3) A neighborhood goal and a driveway can be a perfect set up for a group of friends they want to start a pick -up game. (4) Both boys and girls seem to like to play basketball more boys play than girls. (5) Many community centers offer after school basketball clinics help teens improve their game. (6) In most high schools, basketball is a major part of the PE curriculum has continued to be a favorite for students for many generations.**

*Directions: Choose the best answer to each question.*

1. Sentences 2: **One of the great things about basketball is that it doesn't require a lot of equipment, space, or needing too many people to play.**

*What correction should be made to sentence 2?*

- 1 no correction is necessary
- 2 insert a comma after basketball
- 3 insert a period after equipment
- 4 replace needing too many people with players

2. Sentence 3: **A neighborhood goal and a driveway can be a perfect set up for a group of friends they want to start a pick -up game.**

*What correction should be made to sentence 3?*

1. insert a comma after set up
2. insert a comma after driveway
3. insert the word "if" after friends
4. no correction is necessary

3. Sentence 4: **Both boys and girls seem to like to play basketball more boys play than girls.**

*What correction should be made to sentence 4?*

1. insert a comma after basketball
2. insert but, after basketball
3. insert a period after basketball
4. no correction is needed

- 4 Sentence 5: **Many community centers offer after school basketball clinics help teens improve their game.**

*What correction should be made to sentence 5?*

1. insert a comma after clinics
2. insert period after clinics
3. insert the word which after clinics
4. no correction is necessary

*Which is the best way to write the underlined part of the text?*

5. Sentence 6: **(6) In most high schools, basketball is a major part of the PE curriculum has continued to be a favorite for students for many generations.**

1. insert the word but after curriculum
2. insert the word and after curriculum
3. insert a period after curriculum
4. no correction is necessary

## Verbs

### Instruction

#### **Verbs/ Verb-subject agreement/verb forms/ verb tenses**

*Sections of the GED test give multiple choices for the best use of verbs. You will not be asked to define, identify, or label names of verbs. You will be asked to determine which usage is correct.*

#### *Verb-subject Agreement*

*#1: Verbs must agree in number with the subject (noun) of the sentence. In other words, decide if the subject of the sentence is singular or plural and match the verb to the subject.*

**Examples:** Lisa reads to children at the library every Saturday afternoon.

( Lisa- one person matches reads (verb)

**Lisa and Paula read to children at the library every Saturday afternoon.**

( Lisa and Paula- two people matches read (verb)

**Singular subjects= singular verb**

**Plural subjects = plural verbs**

**#2: Special classification of nouns: These nouns are called collective nouns because they are one name that represents more than one thing. EX. "Group" = more than one person, but is considered singular when matching to a verb.**

**Examples:**

The group wants to know how you will vote tomorrow. (correct)

The group want to know how you will vote tomorrow. (incorrect)

*#3 It is difficult to determine the number (singular or plural) of some words because they do not refer to a specific thing or person.*

*Examples:*

**Many** are called, but few are chosen. (“Many” doesn’t refer to a specific group or person, but is always plural= use a plural verb)

Nobody is going to have lunch until the meeting is over.  
 (“Nobody” is a singular noun = use a singular verb)

ALWAYS SINGULAR	ALWAYS PLURAL	EITHER
“One” and any word ending in “one”		
everyone, anyone, no one	several both many few	All most some none
Words ending in “body”		
somebody, nobody, anybody		
Words ending in “thing” something, anything, nothing		
Each, other, neither, either, much		

*#4 When compound subjects are joined by; “or, nor” make the verb match the noun nearer the verb.*

**Examples:**

The officers or the president needs to take control of the project.  
 (“president” is singular and is nearer the verb = president is singular and “needs” matches the singular noun)

My friend Jeff and his brothers are going to take the food to the picnic  
 (“brothers” is singular and is nearer the verb= brothers is plural and “are” matches the plural noun)

*Remember: Decide if the noun is singular or plural first and then match the verb to the noun.*

## **Verb Form**

*Regular verbs have four (4) parts: present/present participle and past/past participle.*

*Most verbs are regular verbs. Regular verbs form the 4 part by adding "d", "ed", or "ing".*

*#1 The present participle is formed by adding "ing" to the present form of a verb and adding a HELPING VERB of "to be".*

**Example:**

**Present:** Teachers tell us that we need a diploma to get a good job.

**Present Participle:** Teachers are telling us that we need a diploma to get a good job.

*#2 The past form of a regular verb is formed by adding "d" or "ed" to the present form. DO NOT use a helping verb.*

**Example:**

**Present:** My teacher talks with our class about the need to get a diploma.

**Past:** My teacher talked with our class about the need to get a diploma.

*#3 The past participle form of a regular verb is formed by adding "d" or "ed" to the present form and adding a HELPING verb of "to be" or "have".*

**Example:**

**Present:** My teacher explains math in a way that I can understand.

**Past:** My teacher explained math in a way that I can understand.

**Past Participle:** My teacher has explained math better than any other teacher I have had.

## ***Verb Tense***

*Simple tense verbs change to show when a particular action takes place. There are three (3) simple tenses: past- happened in the past, present- takes place now, and future- will take place sometime in the future ( uses helping verb "will")*

**Examples:**

**Present:** The topic for today's lecture is about the next generation of computers.

**Past:** The topic of yesterday's lecture was about the new software in our computer lab.

**Future:** The topic of the lecture for tomorrow will be about the Wireless Internet.

*Perfect tense verbs show time relationships. There are three perfect tenses: These verbs ALWAYS use a helping verb which is a form of "have". Present Perfect expresses an action that started in the past and has been completed OR continues into the present. Past Perfect deals with two past occurrences. Past perfect refers to some action that occurred in the past BEFORE another past action. Future Perfect deals with two future occurrences. Future perfect refers to some action that will begin and end before another future action will occur.*

**Examples:**

**Present Perfect:** The lectures have helped me understand more about computers.

**Past Perfect:** Before this semester, the computer teacher had considered having these lectures, but did not think they were necessary.

**Future Perfect:** I will have attended ten lectures before the end of the semester.

## Irregular Verbs

Irregular verbs do not follow the rule of adding "d", "ed", or "ing". These verbs change in spelling.

Change	Present	Past	Past Participle
Add "en" or "n" to present form	Blow	Blew	Blown
	Eat	Ate	Eaten
	Know	Knew	Known
	See	Saw	Seen
	take	took	taken

### *Practice*

*Directions: Choose the best answer to each question.*

(1) In the school year 2007-2008 over 16, 000 people earned a GED in the state of Tennessee. (2) Since you can make more money with a diploma. (3) Many students understand the need to take the time to go back to school to study for the GED. (4) Adult education services in every county in Tennessee and most offer day and evening classes. (5) The classes free and the materials are also provided free of charge. (6) Those students a GED can expect to earn more than 15% more than a worker without a degree. (7) We know that the 16,000 people who earned their GED will be more prepared to enter the job market and find and keep a good job.

1. Sentence 1: **In the school year 2007-2008 over 16,000 people earned a\_GED in the state of Tennessee.**

*What correction should be made to sentence 1?*

1. No correction is necessary
  2. Insert a comma after GED
  3. Insert a period after GED
  4. Insert the word "by" after GED
2. Sentences 2 and 3: **Since you can make more money with a diploma. Many students understand the need to take the time to go back to school to study for the GED.**

*Which is the best way to write the underlined part of the text?*

1. diploma and many students understand
2. diploma, many students understand
3. diploma so many students understand
4. diploma's many students understand

3. Sentence 4: **Adult education services in every county in Tennessee and most offer day and evening classes.**

*What correction should be made to sentence 3?*

1. Insert a comma after services
2. Replace and with because
3. Insert are offered after services
4. No correction is necessary

4. Sentence 5: **The classes free and the materials are also provided free of charge.**

*What correction should be made to sentence 4?*

1. Remove provided
2. Insert are after classes
3. Insert a comma after free
4. No correction is necessary

*Interrupters are phrases or words that separate the subject and the verb. Use commas to set off the phrase or word.*

**Examples:**

**Eagles, the national bird of the United States, live in tall mountainous areas.**

**(The word Eagles is the subject of the sentence and the word live is the verb. The phrase "the national bird of the United States" is set off by commas because it interrupts the sentence.)**

**Although this is good information, it is not necessary to make the sentence complete.**

**My mother, the congresswoman, graduated from Harvard Law School in 1977. (My mother graduated from Harvard Law School in 1977.) This could be a complete sentence without the interrupter phrase.**

**Your second cousin, Bob, will take us to the race on Sunday. (In this sentence "Bob" is not necessary and is set off by commas. )**

*If a sentence begins with "here" or "there", the subject comes after the verb in the sentence. In this case the words "here" and "there" are not the subject of the sentence.*

**Examples:**

**There are not enough cookies to serve at the party.**

**( The word "Cookies" is the subject of the sentence and the word are is the verb.) Cookies is plural so the verb to match it must be a plural verb.**

**Here is the pizza you ordered.**

**( The word "pizza" is the subject and the word "is" is the verb. Pizza is singular and needs a singular verb.**

*Parenthetical phrases ( of course, in addition, for example, or however) add to the sentence meaning but are not required for the sentence to be complete.*

**Examples:**

**There are, of course, ways to find out where the horses are being boarded.**

**We will, however, make the needed changes in the neighborhood play lot to ensure safety for all of the children.**

## Possessives/ Contractions/ Plurals

In the English Language it is easy to confuse the use of "s" and contractions.

### **Plurals**

*Plurals are words that refer to more than one. A "s" or "es" is usually used to make a singular word plural.*

#### **Examples:**

**If a word does not end in "s", add an "s" to make the word plural.**

girl	girls
boy	boys
dog	dogs
home	homes
sister	sisters

**If a word ends in an "s", "ch", "sh" or "x", add "es" to make it plural.**

fox	foxes
press	presses
church	churches

**A few words are exceptions. The word form changes and an "s" or "es" is not used.**

child	Children
wife	wives
tooth	teeth

**If a noun ends in a consonant followed by a "y", change the "y" to "i" and add "es".**

Cry	cries
City	cities
Try	tries

## *Possessives*

*Possessive forms of a noun show ownership. The noun is made possessive by using an apostrophe (') if the word is singular or an irregular noun that does not end in "s".*

### Examples:

The football team's next game is going to be out of town.

Amanda's new car looks very expensive.

We have a new women's club in Nashville. (irregular noun that does not end in "s")

*A plural noun is made possessive by adding an apostrophe after the "s" in the word. No additional "s" is needed.*

The players' uniforms have arrived.

All of Elvis' movies are playing on cable TV this weekend.

### WARNING:

The apostrophe used to make nouns possessive should not be confused with a contraction. A contraction is a shortened version of 2 words in which vowels are left out to shorten the words.

### Example:

The children's books don't have enough pictures.

"children's books" = books that belong to the children (possessive)

"don't" = 2 words do + not = don't (contraction)

Susan's husband couldn't be at the graduation.

"Susan's husband" = the husband of Susan (possessive)

Couldn't = could + not = couldn't (contraction)

## ***Contractions***

**Contractions are 2 words that are combined and shortened by leaving out letters.**

<b>I am</b>	<b>I'm</b>
<b>you are</b>	<b>you're</b>
<b>is not</b>	<b>isn't</b>
<b>does not</b>	<b>doesn't</b>
<b>I'd</b>	<b>I would</b>
<b>let us</b>	<b>let's</b>

## **Words to Watch:**

**Their (possessive)**  
**There (location)**  
**They're (contraction; they are)**

**Know (to understand)**  
**No (not at all)**

**Two (number 2)**  
**To (direction)**  
**Too (also)**

**Clothes ( articles of clothing)**  
**Close ( to shut)**

**Your (belongs to you)**  
**You're (you are)**

**Its (belonging to it)**  
**It's ( it is)**

## *Practice*

(1)National Wear Red Day, an annual event is held on the first Friday in February. (2)Its a day when Americans nationwide take women's health to heart by wearing red to show their support for women's heart disease awareness.

(3)More women die of heart disease than form all forms of cancer combined. (4)Yet only 20 percent of women identify heart disease as the greatest health problem facing woman today. (5) Most fail to make the connection between its risk factors and their own developing heart disease.

(6)Woman need to devote time to their well-being. (7)They need to pay attention to their bodies and to their health. (8)Being informed about the risk factors of heart disease is important. (9) There are evidence that family history plays a large role. (10)Women of course are more likely to develop heart disease if they have close blood relatives who have it. (11) Race is also a factor. (12)Black women have a greater risk of heart disease than white women. (13) Women's who smoke, or have high blood pressure, or are overweight are also at a greater risk.

1. Sentences 1: **National Wear Red Day, an annual event is held on the first Friday in February.**

*What correction should be made to sentence 2?*

- 1 no correction is necessary
- 2 insert a comma after event
- 3 insert a period after event
- 4 replace on the first Friday with on the First Friday

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2. Sentence 2: **Its a day when Americans nationwide take women's health to heart by wearing red to show their support for women's heart disease awareness.**

*What correction should be made to sentence 2?*

1. change Its to this is
2. insert a comma after Its
3. change Its to It's
4. no correction is necessary

3. Sentence 9: **There are evidence that family history plays a large role.**

*What correction should be made to sentence 4?*

1. insert a comma after evidence
2. change are to is
3. change plays to play
4. no correction is needed

4 Sentence 10 **Women of course are more likely to develop heart disease if they have close blood relatives who have it.**

*What correction should be made to sentence 10?*

1. insert a comma after Women
2. insert comma after women and after course
3. insert a comma after if
4. no correction is necessary

5. Sentence 13 **Women's who smoke, or have high blood pressure, or are overweight are also at a greater risk.**

*What correction should be made to sentence 13?*

1. change Women's to Womens
2. change Women's to Women
3. change Women's to Woman's
4. no correction is necessary

6. Sentence 6 **Most fail to make the connection between its risk factors and their own developing heart disease.**

**What correction should be made to sentence 6?**

1. change its to it's
2. change its to it is
3. insert a comma after factors
4. no correction is necessary

## *Commas*

Commas break up sentences to make them make sense as you read. There are six rules for commas you will need to be familiar with. You do not need to memorize the rules, but it will help if you can remember how to use commas in sentences. There are a good number of questions on the GED that require correct placement of commas.

1. *Commas are used to separate three or more items or phrases.*

Examples:

We went to the market yesterday and bought apples, peaches, pears, and lemons.

I have a lot to do at work today. I need to type a letter, send three emails, and create an agenda for next week's meeting.

2. *Commas are used to separate dates and addresses.*

Examples:

March 3, 2009

Tuesday, August 3, 2009

Nashville, TN  
zip)

Lenoir City, TN 37772 ( no comma before the

3. *A comma is used after a dependent clause (incomplete sentence) that comes AT THE BEGINNING OF A SENTENCE. A comma is not used if the dependent clause comes AT THE END OF THE SENTENCE .*

Examples:

Since you are my best friend, I will tell you my secrets.  
( dependent clause at the beginning of the sentence= use comma)

I will tell you my secrets since you are my best friend.  
(dependent clause at the end of the sentence = no comma)

4. *A comma is used between two independent clauses (complete sentences) in a sentence IF a coordinating conjunction is used. Place the comma before the conjunction. Coordinating conjunctions:  
and, but, or, so, yet, for, and nor*

**Examples:**

**We were in the city for a long time, yet we did not find the wedding dress my daughter wanted. (2 complete independent clauses separated by a comma)**

**My son has worked for the bakery for six years, and he has never been given a raise. (2 complete independent clauses separated by a comma)**

5. *Commas are used to set off parenthetical expressions such as; however, of course, for example, and for instance.*

**Examples:**

**You can count the number of stitches, however, you could just look closely and not count. (however is set off by commas)**

**The new car, of course, will cause your insurance rates to go up. (of course is set off by commas)**

6. *Commas are used to set off a non-essential appositive. An appositive is a word or words that describe or explain another noun. Some appositives are necessary because they help define exactly who, what, where, or when. Some appositives add to the sentence but are not necessary for clear meaning.*

**Examples:**

**My teacher, Ms Anderson, knows just how to explain math problems so that I can understand. (not essential to understanding)**

**Rev. Evans, the new minister at our church, has three children that will go my school. (not essential to understanding)**

## Practice

(1)A laugh a day may keep the doctor away. (2)Humor is good medicine. (3)Research has shown many benefits of laughter. (4)It helps keep out minds and body healthy. (5)It relaxes our muscles and increases circulation, increases the oxygen level in our blood and lowers blood pressure. (6)It also boosts the immune system. (7)Infections are less likely to strike if we are laughing.

(8)Since laughter is a form of release it rids the mind of stressful emotions and reduces the level of stress hormones. (9) Think of a time when you had a good belly laugh and your whole body was engaged. (11)Laughter can be much like exercise because it affects the entire body. (12) My grandparents Bob and Linda laughed everyday and both lived into their nineties.

1. Sentence 5 **It relaxes our muscles and increases circulation, increases the oxygen level in our blood and lowers blood pressure.**

*What correction should be made to sentence 5?*

1. insert a comma after muscles
2. insert a comma after blood
3. insert a comma after lowers
4. no correction is necessary

- 2 . Sentence 8: **Since laughter is a form of release it rids the mind of stressful emotions and reduces the level of stress hormones.**

*What correction should be made to sentence 8?*

- 1 insert a comma after Since
2. insert comma after release
3. insert a period after release
4. no correction is need

3. Sentence 9 **Think of a time when you had a good belly laugh and your whole body was engaged.**

*What correction should be made to sentence 9?*

- 1.insert a comma after laugh
- 2.insert comma after and
- 3.insert a comma after time
- 4.no correction is necessary

- 4 Sentence 12 **My grandparents Bob and Linda laughed everyday and both lived into their nineties.**

*What correction should be made to sentence 12?*

- 1.insert a comma after grandparents
- 2.insert comma grandparents and Linda
- 3.insert a comma after laughed
- 4.no correction is necessary

5. Sentence 13 **Laughter can be much like exercise because it affects the entire body.**

*What correction should be made to sentence 9?*

- 1.insert a comma after laughter
- 2.insert comma after exercise
- 3.insert a comma after affects
- 4.no correction is necessary

## *Moving/Removing Sentences*

On the GED test you may expect a few questions that will require that you read the passage and move a sentence from one paragraph to another or remove the sentence from the passage. There are 3 major reasons to move or remove a sentence.

1. *The sentence does not fit in the passage because of the time sequence of events or the order of operation in a direction.*

**Example:**

(1)The way to make a cup of tea is easy. (2)First you turn on the stove to high heat. (3)Next you will fill a tea kettle with cold water and bring the water to a full boil. (4)Then you pour the hot water into the tea pot so that the tea bags are covered. (5)Drop the tea bags into the pot being careful not to let the strings slip too far into the pot. (6)Place a cover over the tea pot and let it steep for 5 minutes.

(In this passage the tea bags should have been place in the pot before the water was poured because sentence 4 describes that the water should cover the tea bags.) This is a sequence of directional operations problem.

2. *The sentence does not match the information or action that occurs in the rest of the sentence and would be better placed in a paragraph that matches the content better.*

**Paragraph A**

(1)I like to eat a good breakfast early in the morning. (2)The only problem I have with this is that I am not a morning person and making a good breakfast is hard for me. (3) I decided to make a plan for breakfast and give myself step by step directions for the things I like best. (4)This should help me focus better and be able to make the things I like. (5) I decided that a perfect breakfast for me is a cup of tea, scrambled eggs, grits, toast, and fruit. (6) My favorite way to begin the morning is with a good cup of hot tea. (7)I think that planning ahead will make my mornings great.

**Paragraph B**

**(8)The way to make a cup of tea is easy. (9)First you turn on the stove to high heat. (10)Next you will fill a tea kettle with cold water and bring the water to a full boil. (11)Then you pour the hot water into the tea pot so that the tea bags are covered. (12)Drop the tea bags into the pot being careful not to let the strings slip too far into the pot. (13)Place a cover over the tea pot and let it steep for 5 minutes.**

**In paragraph A, sentence 6**

**Sentence 6 fits into paragraph B as the first sentence in the paragraph because it singles out tea as a favorite part of the breakfast. In paragraph A the foods are listed but not other item is singled out. The sentence about tea would be a good topic sentence for paragraph B.**

**On the GED the question might look like this:**

**6) My favorite way to begin the morning is with a good cup of hot tea.**

Which revision should be made to the placement of sentence 6?

1. Move sentence 6 to follow sentence 1
2. Move sentence 6 to follow sentence 12
3. Move sentence 6 to follow sentence 3
4. Move sentence 6 to the beginning of paragraph B

**Note: This questions take more time to answe and require that you read the entire passage.**

- 3. The sentence is not needed in the passage because it describes things, actions, or ideas that are not a part of the passage.*

### **Paragraph A**

**(1)I like to eat a good breakfast early in the morning. (2)The only problem I have with this is that I am not a morning person and making a good breakfast is hard for me. (3) I decided to make a plan for breakfast and give myself step by step directions for the things I like best. (4)This should help me focus better and be able to make the things I like. (5) I decided that a perfect breakfast for me is a cup of tea, scrambled eggs, grits, toast, and fruit. (6) My favorite way to begin the morning is with a good cup of hot tea. (7)I think that planning ahead will make my mornings great.**

### **Paragraph B**

**(8)The way to make a cup of tea is easy. (9)First you turn on the stove to high heat. (10)Next you will fill a tea kettle with cold water and bring the water to a full boil. (11)Then you pour the hot water into the tea pot so that the tea bags are covered. (12) There are many kinds of tea to choose from and some of them are used to medicinal purposes. (13)Drop the tea bags into the pot being careful not to let the strings slip too far into the pot. (14)Place a cover over the tea pot and let it steep for 5 minutes.**

### **Sentence 12 Paragraph B**

**Sentence 12 describes different types of tea and denotes that it can be used for medical purposes. No other part of this paragraph or passage relates to the medicinal uses of tea. This sentence should be left out.**

## *Suggested Essay Format*

### **Introduction**

**Restate the essay question using your own words – do not simply write the question or prompt**

**The introduction should state your points using commas to separate the ideas in the sentence.**

**For example: In my opinion a dog makes a better pet than a cat. A dog will play with his owner, a dog will show affection, and he can be trained to do a variety of tricks and tasks. A dog will bring many days of enjoyment and companionship to his owner.**

### **Body Paragraphs**

**Discuss the first of your points using descriptive words, details, examples, etc. Create a picture in the reader's mind using words!**

**Next paragraph – discuss the second of your points using more details and examples.**

**Do this for each one of your points.**

**For example: A dog will play with his owner. A dog will play whenever his owner wants to, whereas a cat will usually ignore his owner unless the cat is in the mood to play. A dog can play fetch, go for a swim, and walk or jog with his owner. A cat is much more limited in his play activities.**

### **Conclusion**

- *Restate your points in a way that differs from exactly how you said it in the introduction paragraph. The conclusion is much like the introduction, but you should avoid simply repeating yourself with the same words.*
- *The conclusion is your wrap up of ideas and indicates to the reader that you are finished.*

**For example:** In conclusion, I believe a dog makes a better pet than a cat. A pet owner will enjoy a dog because a dog will be playful with his owner, he will show love and affection, and a trained dog can be helpful by completing special tasks and tricks. For these reasons, I would recommend having a dog as a pet rather than having a pet cat.

### Common Essay Mistakes

**Too Short:** The essay needs to be at least 3-5 paragraphs in length and needs to include plenty of details, examples, and stories to fully address the prompt and to demonstrate writing skills.

**Off Topic:** One must properly address the prompt and write on the topic. Read the prompt until it is fully understood. Brainstorming/planning will help the essay stay focused and on topic.

**Organization:** To avoid a “blob” of writing, spend 5-10 minutes brainstorming ideas. Then group the ideas, supporting details, examples, and stories. At this point, complete sentences are not necessary. Just enough information to be a reminder of what is to be written is all that is needed. The essay should have a clear beginning, middle, and end. There will not be time to rewrite, so plan! It is acceptable to scratch out words and to add words if needed – helps to keep it as neat as possible.

**Fiction:** The essay does not have to be all facts. It is okay to make things up. The point is to demonstrate the ability to express ideas in a written form.

**Repetition:** Avoid saying the same thing over again. Make the point with details, examples, and stories and then move on to the next point. Stopping every now and then to read what has been written (from the beginning) can help.

**Complete Sentences:** A sentence has a subject and a verb, begins with a capital letter, and ends with punctuation.

## Essay

### **General Information**

**Fifty multiple choice questions** covering conventions of English grammar comprise the first section of the test. The time allowed is 75 minutes.

**The essay** is the second part of the language arts writing test. A prompt (or topic) will be given and the essay must be written on topic. The essay may be in cursive or in manuscript using only a pen. Marking out mistakes is allowed. There is not time for a rewrite. The time allowed is 45 minutes.

The GED essay is scored by two trained readers. The **scoring scale is 0-4. A minimum of 2 must be attained in order to have a passing score. The higher the essay score, the more one is allowed to miss on the multiple choice section.**

### *Steps to a Great Essay*

- Read the prompt carefully making sure you understand what the prompt is asking of you.
- Determine if the essay is about something in the past or is it happening now.
- Take the time to brainstorm and plan your essay before writing. A graphic organizer may be helpful. The essay will have a better flow and remain on topic.
- Use specific details, examples, and stories to illustrate your points.

### Format

- **Keep in mind the prescribed essay format as you write: introduction, body, and conclusion.**

### Point of View

- **If you start with personal point of view (I, me), continue this throughout the essay.**

### *Response to the Prompt*

- **MUST address the prompt and remain on topic**

### *Organization*

- **Essay format is used – indent the paragraphs**
- **Sentences within the paragraph match the topic of the paragraph**

### *Development and Details*

- **Descriptions of ideas or points should be specific**
- **Think about who, what , where, when, and why**
- **Use descriptions, examples, and stories to show details**

### *Conventions of English*

- For the most part, sentences should be complete (subject, verb)
- Avoid run on sentences by using commas and conjunctions
- Good, but not perfect, use of capitalization and punctuation
- In general, most common words should be spelled correctly. Spelling is not specifically graded, however, it should not be so bad as to interfere with the understanding of the essay. Remember...I is always capitalized, GET not git, and ASK not ast.
- Verb tense and subject/verb agreement should be used correctly with very few mistakes.

### *Word Choice*

- Readers are not impressed with big words used incorrectly. Use words you are familiar with to make your points clear.

**The GED Testing Site Readers use a rubric to score the essay.**

**A passing score of 2 is required.**

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## Graphic Organizers

- **5- 10 minutes of planning can make the rest of your time much easier and help you write an organized, focused essay**
- **Do not try to write an essay without first organizing your thoughts and creating a plan to follow when writing**

Graphic Organizer Example:

**Topic \_\_\_\_\_ (from the prompt)**  
**2 or 3 important facts to illustrate the topic**

**1. fact \_\_\_\_\_**  
**examples \_\_\_\_\_**  
\_\_\_\_\_

**2. fact \_\_\_\_\_**  
**examples \_\_\_\_\_**  
\_\_\_\_\_

**3. fact \_\_\_\_\_**  
**examples \_\_\_\_\_**  
\_\_\_\_\_

**Conclusion \_\_\_\_\_**

## *Instruction*

### **Sentence**

- A sentence is a complete thought. It has a verb and subject. It begins with a capital letter and ends with a period, question mark, or exclamation mark.

- There are three basic types of sentences:

1. *A simple sentence has one subject and one verb.*

Example: David is buying a new car.

2. *A compound sentence has two or more complete thoughts joined by a conjunction. (Common conjunctions are: and, but, for, nor, or, so, and yet)*

Example: David wanted a new car, but he didn't have the money to buy it.

Example: David wanted a new car, and he got a loan to finance it.

3. *A complex sentence has both an independent and dependent clause joined by a subordinating conjunction. (Common subordinating conjunctions are: after, because, before, if, since, when, although, and while)*

Example: Even though David got the loan, he decided the price of the car was too high.

Example: David decided the price of the car was too high even though he got the loan.

*Paragraph*

*A paragraph includes a topic sentence which tells what the paragraph is about. The other sentences in the paragraph are supporting details that tell more about the topic.*

**Example:** I like to eat a good breakfast. I like the taste of bacon, eggs, and grits. Eating breakfast makes me feel good all day. It helps my energy level remain high, and doctors say it is the most important meal of the day.

**Example of off topic:** I like to eat a good breakfast. I like the taste of bacon, eggs, and grits. Eating breakfast makes me feel good all day. It helps my energy level remain high, and doctors say it is the most important meal of the day. My doctor says my blood pressure is also high. Eating a good breakfast reminds me of favorite childhood memories of mom cooking for me.

**Practice a Paragraph**

- Write a paragraph using the following topic sentence: My idea of a perfect day is a day in the mountains.

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**Practice a Topic Sentence**

- **Almost every day when I go to my mailbox, I find at least one letter that is not mine. I stopped the mail carrier one day and spoke to her about this. I even wrote the names of the people that live in my house on the inside of my mailbox. However, the next day I found two letters that were not mine. This is not a big problem, but it is a hassle to return the mail to the rightful owner.**
- **Write a topic sentence:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

***Paragraphs That Exhibit Detail***

***Descriptive Language***

- **Gives the reader a clear picture of what is in the writer’s mind**
- **Makes the topic come alive by using very precise words that tells how something looks, feels, tastes, smells, or reacts**

**Example: bear**

**black bear  
big, black bear  
big, black bear ran  
big, black bear ran quickly, but quietly  
The big, black bear ran quickly, but quietly through the forest.**

**The long, sandy stretch of beach was deserted and quiet.**

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**Figurative language is another way to describe by comparing one thing to another.**

**Example: Yesterday's rain was so warm, it made me feel like I was standing in my shower.**

**My son's room looks like a pig sty.**

**Examples are another way to describe a topic. The examples need to be specific and not general.**

**Example (general): My father is a very busy man. He does a lot of things.**

**Example (specific): My father is a very busy man. He teaches high school during the day, teaches GED classes two nights a week, and coaches Little League on Saturday's.**

**Example (general): I want a good job so I am going to get my GED.**

**Example (specific): I want to work for the U. S. Post Office, so I am going to start GED classes on Tuesday.**

**Stories are an effective way of describing. Stories need to tell who, what, when, where, and why.**

**Example: My father died a year ago today. When I was a little girl, my father worked for**

**NASA. I remember him coming home for dinner in the evenings and telling the family about the latest project. He would make the stories so interesting; I wanted to be an astronaut when I grew up. Now that I have accomplished this dream inspired by my father, I miss sharing dinner stories with him.**

**Example: My mother taught me to be an honest person. When I was seven, I took some chewing gum from the grocery store while we were shopping. After we got home, she realized I had taken the gum and talked with me about the importance of honesty. She took me back to the store to apologize to the owner and pay for the gum. That was a lesson I have never forgotten.**

**Using precise and descriptive language, develop a paragraph using the following topic sentence: My favorite place is \_\_\_\_\_.**

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**Using specific examples, develop a paragraph using the following topic sentence: My favorite place is\_\_\_\_\_**

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**Using a story, develop a paragraph using the following topic sentence: My favorite place is**

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### 3 Influences on the Essay

#### *Tense*

*After reading the essay topic, decide if it is something that happened in the past or if it is something that is happening now – in the present. If it is written in the past, words such as was or were will be used. If it is written in the present, words such as am and are will be used. Verbs identify time. Keep the entire essay in the same tense.*

**Example: Thomas and I are the best of friends.  
Thomas and I were the best of friends in high school.**

**Sample Action Verbs**

<b>Achieve</b>	<b>Answer</b>	<b>Allow</b>	<b>Assist</b>	<b>Complete</b>
<b>Create</b>	<b>Develop</b>	<b>Direct</b>	<b>Lead</b>	<b>Lose</b>
<b>Manage</b>	<b>Operate</b>	<b>Organize</b>	<b>Plan</b>	<b>Solve</b>
<b>Teach</b>	<b>Tell</b>	<b>Learn</b>	<b>Train</b>	<b>Use</b>
<b>When</b>	<b>Leave</b>	<b>Drive</b>	<b>Think</b>	<b>Refuse</b>

***Point of View***

- Write as yourself – use “I am”....
- Write to someone – use “you are”....
- Write about someone – use “he, she, they”....
- Write as if you are part of a group – use “we, us”...

*As with tense, do not change point of view in the essay. Stay consistent.*

**Example:** Many people say they like to work in the garden, but when the weather gets hot you want to quit.

***Fact and Opinion***

**A fact is a statement that can be proven. An opinion is what one thinks. If opinions are used, back them up with reasonable and logical examples or with facts.**

**Example (opinion):** I think seat belt laws are a good idea. I do not hear of as many people being killed on the roads as I have in the past.

**Example: (fact):** Seat belts help save lives. Since enacting seat belt laws, there have been 40% fewer deaths on the highway.

**Prompt:** Write about someone that you believe is a successful person. Tell why

**he/she is successful.**

**The Original Essay (numbers added for reference)**

(1)Someone I consider a successful person. (2)Is my older brother.  
(3)The first reason I consider my older brother a successful person is because.  
(4)Right after his mom died he moved in with my grandparents and when he got in highschool he got a job and bought his own vehicle and paid for everything and he is very smart.  
(5)The second reason I consider my older brother a successful person is because.  
(6)When he got out of highschool he went straight to college and graduated and then got a better job so he could provide for hisself and not depend on everybody else and then he got a nicer vehicle and was paying for that by himself. (7)And he just proves to me he is a successful person.  
(8)The third reason I consider my older brother a successful person is because.  
(9)He knows how to take care of himself. (10)And he lives in California now and runs his own Walgreens store and he makes good money and has a nice house and a vehicle and he lives on the beach. (11)Also he has his own workout center.  
(12)Those are the reasons I consider my older brother a successful person. (13)I wanna grow up and be able to be like him and be a successful person and take care of myself and not have to and not have to depend on everybody else. (14)That's wat I think about being a successful person is supposed to be.

**Strengths**

- +Essay addresses the prompt and remains on topic
- +Essay is separated into distinct paragraphs that provide a visual for the reader
- +Transition words (first, second, etc) are used
- +Spelling is acceptable

**Needs Improvement - Organization**

**(1) and (2) are not complete sentences. They could be combined:** Someone I consider to be a successful person is my older brother. **This is not enough information for the introductory paragraph. It should be 3-5 sentences long and briefly tell what the essay will be about.**

**(3)-(11) are the details that make up the body of the essay. Preplanning and organization would have made the details much more effective by grouping similar examples together. There are 3 reoccurring points in the essay: overcoming tough times, obtaining an education, and becoming financially independent. These 3 could be the main points with examples and stories for support.**

**Needs Improvement – Punctuation, grammar, etc.**

- (3), (5), and (8) – do not end with because**
- (4) – high school is 2 words**

(6) - hissself should be himself

(7) – do not begin with and

(11) – wording is awkward –“ Also he has his own workout center.” He also has his own workout center.

(13) – wanna should be want to

(14) – wat should be what – wording of sentence is awkward

### Revised Essay

Someone I consider to be a successful person is my older brother. He survived tough times, finished his education, and takes care of himself financially. He has given me an example to learn from by being successful himself.

When my older brother’s mom died, he moved in with our grandparents. This was a very tough time for him to survive. He was very close to his mom and then all of a sudden found himself having to live without her to take care of him. He took responsibility for himself and kept on doing the things his mom would have wanted him to do even though she was gone.

Another reason my brother has been successful is the education he has completed. While living with our grandparents, he finished high school. After high school, he continued on to college. He worked hard and made good grades. He finished his degree and graduated from college. He had the degree he needed to obtain a good job in an area that was interesting to him.

The third reason I feel my brother is successful is because he is able to take care of himself financially. Ever since he was in high school, he has worked to pay his own bills. For example, when he was in high school, he got a car and paid for it by himself. After college, he got a good job and was able to buy an even nicer vehicle. He paid his own rent, bought his own clothes, and paid his other bills. Now he lives in California in his own house on the beach. He runs his own Walgreens store and has his own workout center.

My older brother is an example of a person that I think is successful. I admire him for making the best of a tough situation when his mother died. I want to be like him and finish my education because I know that will help me get a good job. I mostly want to be able to take care of myself like he has been able to all these years. I believe my brother is a great success.