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The GED Mathematics Test

Geometry

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Passing the GED Math Test

Equations are just the boring part of mathematics.
I attempt to see things in terms of geometry.
Stephen Hawking (1942 -)

Video 35 Focus: how you use geometry in your daily lives and on the GED Math Test.

You Will Learn From Video 35:

- That learning about geometry means defining key words.
- About points, lines, rays, and angles.
- How to use geometry to solve problems at home and at work.
- The names and properties of different types of triangles.
- How to use the Pythagorean Relationship.

Words You Need to Know:

While viewing the video, put the letter of the meaning by the correct vocabulary word. Answers are on page 19.

_____1. angle	a. the longest side of a right triangle and the side opposite of the right angle
_____2. triangle	b. same or in proportion to
_____3. congruent	c. three line segments that come together with interior angles that equal 180 degrees
_____4. vertex	d. two rays that share an endpoint
_____5. hypotenuse	e. the end point shared by two rays that is the corner of an angle

Points to Remember:

- Geometry is about objects, surfaces, lines, and angles.
- You need to know some basic rules of geometry.
- It is important to be able to define some terms that are used in geometry.
- Geometry is used by artists, navigators, electricians, and other workers.
- Spatial reasoning is important in understanding geometry.

Introduction and History

Geometry was completely organized in about 300 B.C. when the Greek mathematician, Euclid, gathered what was known at the time from many different ancient civilizations, added original work of his own, and arranged 465 propositions into 13 books, called 'Elements' The books covered not only plane and solid geometry but also much of what is now known as algebra, trigonometry, and advanced arithmetic.

Geometry in ancient times was recognized as part of everyone's education. Early Greek philosophers asked that no one come to their schools who had not learned the Elements of Euclid. To learn more about the complete history of geometry, go to this Internet site: http://math.rice.edu/~lanius/Geom/his.html.

Now formal study of geometry is usually a course offered in high schools and colleges. However, geometry is also part of the mathematics course of study in early grades when children learn about shapes and their properties, coordinate graphing, and formulas for finding area and volume.

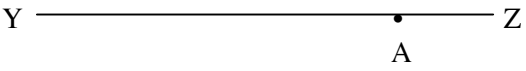
Geometry has been used for centuries by scientists, navigators, mathematicians, electricians, and artists. We use geometry in our daily lives when we install new kitchen or bathroom cabinets, cut a cake, build an outdoor play area, and in many other tasks at home and at work.

On the GED Math Test, geometry is about objects, surfaces, lines, and angles. You will not have to prove theorems or do the kinds of activities that you would do in a high school geometry course, but you will have to know many of the basic principles of geometry and have to be comfortable working with formulas.

Points, Lines, Rays, and Angles

Points

A **point** has several definitions in mathematics. A point has several definitions because, over the years, many different mathematicians have come up with various ideas as to just what a point should be. Since their ideas were all equally true, the point was given four official definitions. A point can be defined as a *dot*, the *exact location*, an *ordered pair*, and the *node*. Only three of these definitions are needed for the GED Math Test. When written out or shown on a line, a point is always represented by a capital letter.



Here Point A is on line segment YZ.

The first definition of a point is a *dot*. A dot is the first kind of point created. A dot has size, a definite, measurable length and width. One of the best examples of a dot today is a pixel. Pixels are those tiny spots of color that make up your television, computer, and digital camera screens. The more pixels in a screen, the better the resolution.

The second definition of a point is an *exact location*. The exact location is a normal, zero-dimensional point. No matter how much you zoom in, there will always be another point between two others. This definition of a point was discovered sometime between 550 B.C. and 150 A.D. An example of how it is used in real life is in measuring distances, especially between two cities. Some cities are more than a mile across, so mapmakers have to pick one exact location in the city to measure from. So they choose an exact location somewhere within the city boundaries.

The third definition of a point is an *ordered pair*. An ordered pair is a place that two points share on a coordinate plane grid. An example of an ordered pair is (4, -2). You will use coordinate plane grids to answer some of the questions on the GED Math Test and will practice working with ordered pairs in *GED Video Partners* workbooks.

The fourth definition of a point is a *node*. This definition is not needed for the GED Math Test or for use in real life. It is used only by scientists and mathematicians.

Lines

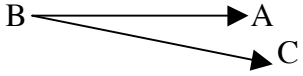
A **line** is a one-dimensional figure. Line has only one dimension, length. A line is made up of an infinite numbers of points. Points on the same line are called co-linear. Between every two points is another point, and this continues forever. You can never run out of points to discover in a line. When you are talking about points as dots, however, you can get a discrete line where you can name each point. The number line is a line where every point is represented by a number.

Rays

A **ray** is a line with only one endpoint. Two rays come together to form an angle. Angles are a very important part of geometry. You will need to know about angles for the GED Math Test.

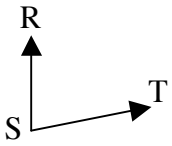
Angles

An **angle** is the union of two rays that have the same endpoint. The vertex is where the two rays come together.

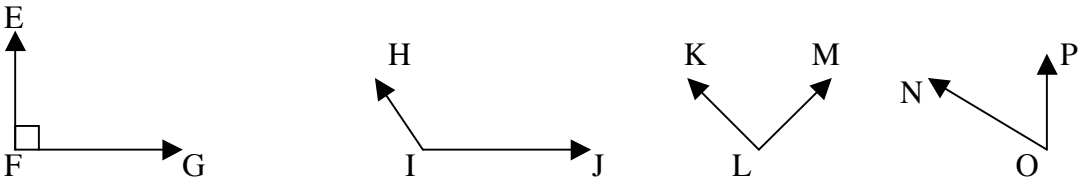


B is the vertex of angle ABC.

An angle can be named in two ways. It can be named for its vertex. It can be named with three letters with the name for the vertex in the center. This angle could be labeled Angle S or Angle RST.



Name each of the following angles in the space below: Answers are on page 19.



_____ _____ _____

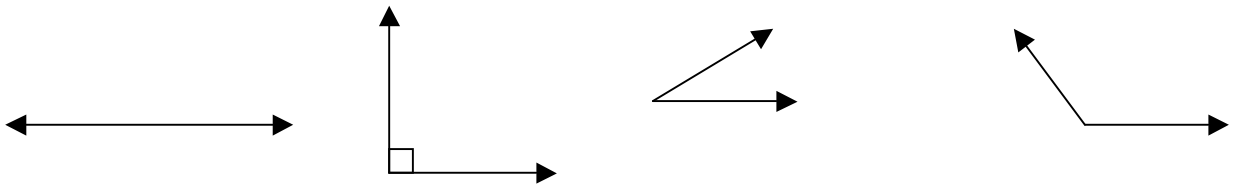
_____

Angles are measured in degrees. The number of degrees can tell you how wide open the angle is. You can measure angles with a protractor. Degrees are marked by a ° symbol. An angle can measure from 0° to 360°.

On the GED Math Test, you will not be able to use a protractor, so you won't have to measure any angles during the test. You will have to know about different kinds of angles and the definitions of these angles.

- A **zero** angle has 0° and is just a single ray.
- An **acute** angle is an angle which measures between 0° and 90° (see Angle O above).
- A **right** angle measures *exactly* 90° (see Angle F above).
- An **obtuse** angle is an angle which measures between 90° and 180° (see Angle I above).
- A **straigh**t angle measures *exactly* 180° and is a straight line.

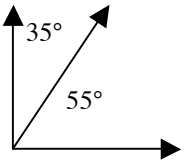
Use the terms acute, right, obtuse, or straight to label the angles below. Do not use a protractor. Answers are on page 19.



_____

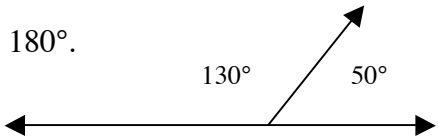
Complementary Angles

Two angles are **complementary** when their sum equals 90°.



Supplementary Angles

Two angles are **supplementary** when their sum equals 180°.



What is the measure for the missing pair of each complementary angle or supplementary angle on the chart below: Answers are on page 19.

Definition	Angle A	Angle B
Complementary	45°	
Complementary	85°	
Complementary		60°
Complementary		38°
Supplementary	110°	
Supplementary	20°	
Supplementary		150°
Supplementary		80°
Complementary	44°	
Supplementary		106°
Complementary	28°	
Supplementary		10°

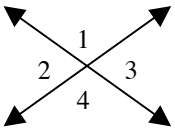
In the space below, draw a representation of the following pairs of angles. Do not use a protractor. The measurements should be approximations. Label each drawing with the correct letter. Answers are on page 19.

a. a 45° and its complement b. a 45° and its supplement c. a 60° angle and its complement

d. a 100° angle and its supplement e. a pair of complementary angles of your choice

Vertical Angles

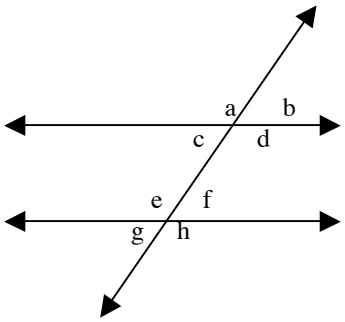
Vertical angles are angles across from each other when two lines intersect, or cross. Vertical angles are also called opposite angles. Vertical angles are equal. In the diagram below, angles 1 and 4 are equal, and angles 2 and 3 are equal.



Transversals

A **transversal** is a line cutting across two or more parallel lines. When this occurs, there are important rules about the angles formed.

1. **Corresponding angles** are equal.
2. **Alternate interior** angles are equal.
3. **Alternate exterior** angles are equal.



1. **Corresponding angles** are in the same position with respect to the transversal. They are always on the same side of the transversal and are both above or both below one of the parallel lines. Examples of corresponding angles in the illustration above are:

   a and f b and f c and g d and h

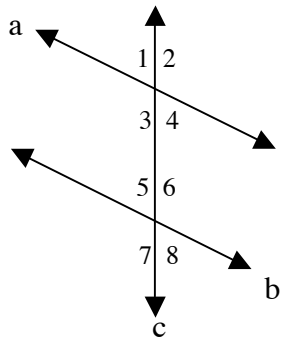
2. **Alternate interior angles** are always inside the parallel lines and on opposite sides of the transversal. Examples of alternate interior angles in the illustration above are:

   c and f d and e

3. **Alternate exterior angles** are always outside the parallel lines and are on opposite sides of the transversal. Examples of alternate exterior angles in the illustration above are:

   a and h b and g

In the figure below, line a is parallel to line b. They are cut by a transversal, line c.



Refer to the examples on page 6, to answer the following questions about the figure above. Answers are on page 19 and 20.

Question	Answer(s)
What are the four interior angles?	
What are the four exterior angles?	
Which angle corresponds to angle 5?	
Which angle corresponds to angle 2?	
Which angle corresponds to angle 4?	
Which angle corresponds to angle 7?	
Which is the alternate exterior angle to angle 8?	
Which is the alternate interior angle to angle 6?	
What is the exterior angle on the same side of the transversal as angle 1?	
Which angles are supplementary to angle 5?	
Which angle(s) is/are vertical to angle 1?	

Longitude and Latitude

Longitude and latitude are the imaginary lines circling the globe from north to south and east to west. These are arbitrary lines that have been agreed upon by geographers and other scientists to describe locations on the earth's surface.

The vertical lines, the longitude, reach from pole to pole and describe how far a point is from the zero line which is called the prime meridian. Scientists decided that the zero point would be the line which passes through Greenwich, England and extends 180° in either direction. As the lines of longitude approach the poles, they become closer and closer together until they all meet at the imaginary points of the North and South Poles.

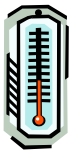
The horizontal lines, the latitude. radiate north and south of the equator. The lines of latitude are always the same distance apart as they circle the globe. An exact location on earth can be described using degrees of longitude or latitude.

Measure Up - A Matter of Degree

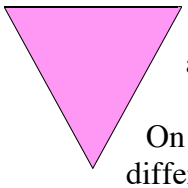
Angles are measured in degrees, and temperature is measured in degrees. These are two different meanings of the word degree. A degree in measuring angles is a 1/360 of a circle. A degree in measuring temperature is one unit on a certain scale. In the United States, it is most often the Fahrenheit scale. In other countries it is the Celsius scale. There are many other scales used by scientists.

In the following exercise, match the proper measure of degrees to the situation. Use the strategies you have learned to make the best matches. Answers are on page 20.

Right angle	a) 0 degrees
Spring day in southern California	b) 178°
Straight angle	c) 0°C
Freezing point of water in Canada	d) 90 degrees
Circle	e) -20°F
Boiling point of water in New York	f) 180°
Obtuse angle	g) 119°F
Zero angle	h) 67°F
Very hot day in Death Valley	i) 360 degrees
Very cold day in Wisconsin	j) 212°F
Acute angle	k) 38 degrees



Triangles



A **triangle** is a plane (flat), closed figure with three sides and three angles.

On the GED Math Test you will need to know about triangles, their properties, different kinds of triangles, and how to use formulas to find the perimeter and area of triangles. The sides of triangles can have different lengths, and their angles can have different measures. However, the sum of the interior angles of any triangle is 180

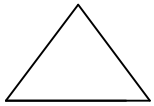
degrees. The triangle shown here has all angles equal because the sides are all the same length. Each of the angles in this triangle measure 60°. It is important to know the different types of triangles, to identify them, and to know the properties of each.

Types of Triangles

Triangles are named by describing the length of their sides and/or the measures of their angles. It is important to know the names of four types of triangles for the GED Math Test and to know the properties of these triangles. The word **congruent** is used to mean equal in geometry. Congruent sides are sides of equal lengths. Congruent angles are angles with the same measures.

Equilateral

An equilateral triangle has all three sides congruent and all three angles congruent. Since the sum of the interior angles of all triangles is 180°, all three angles of an equilateral triangle measure 60°.

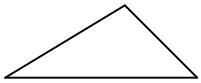


Isosceles

An isosceles triangle has two sides congruent. The angles opposite these sides are also congruent.

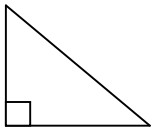
Scalene

A scalene triangle has no sides and no angles congruent.



Right

A right triangle has one right (90°) angle. A box in the vertex of the angle is used to show that it is a right angle.



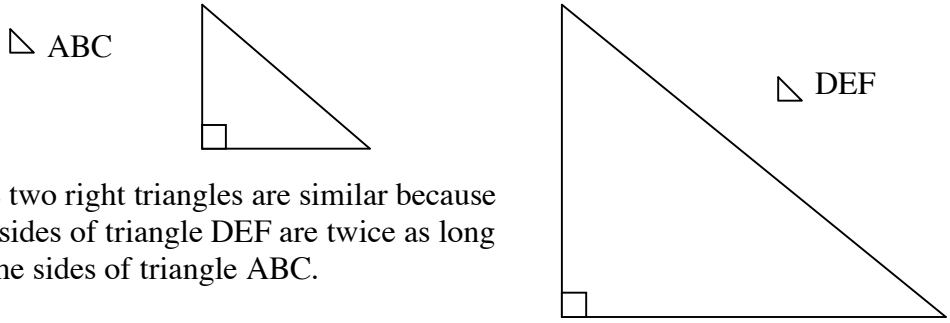
Since the sum of the interior angles of every triangle is 180°, you may be given the measures for two angles of a triangle and have to tell the number of degrees in the third angle. In the right triangle above, if one of the angles is 55°, what is the measure of the third angle. You can find that angle by adding the right angle (90°) to the 55° angle. Those two angles together equal 145°. Subtract 145° from 180°. The third angle measures 35°.

There are descriptions for other types of triangles, but these terms are not used on the GED math test. Acute triangles have all three angles less than 90°. An obtuse triangle has one angle greater than 90°. A triangle can have only one obtuse or one right angle. All of the other angles will be acute.
Find the measure of the missing angle in the triangles described below. After you find the angle measures, you should be able to identify the type of triangle. Refer to the definitions on page 9. Answers are on page 20.

Angle A	Angle B	Angle C	Type of Triangle
60°		60°	
90°	40°		
	35°	75°	
55°	55°		
	90°	55°	
110°	30°		
33°		77°	
65°		65°	
	107°	43°	

Similar Triangles

Two triangles are **similar** if their corresponding angles are equal and the corresponding sides are in proportion. The triangles will look the same, but the lengths of the sides will be different.

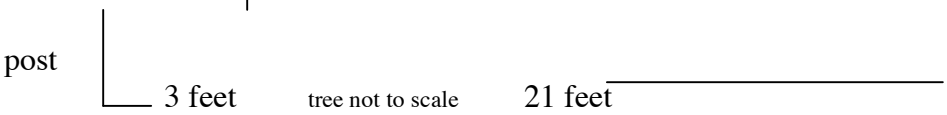


The two right triangles are similar because the sides of triangle DEF are twice as long as the sides of triangle ABC.

Similar triangles are often used on the GED Math Test to solve problems to find heights that are hard to measure. For example:
In the morning, a 5-foot fence post casts a 3-foot shadow. At the same time a nearby tree casts a 21-foot shadow. How tall is the tree?

Set up a proportion:

shadow	height
3	5
21	?



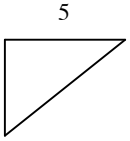
Use cross products to solve the proportion to find the height of the tree.

$\frac{3}{21} \times \frac{5}{x}$ $\quad 3x = 105 \quad \longrightarrow \quad \frac{3x}{3} = \frac{105}{3} \quad \longrightarrow \quad x = 35$

The tree is 35 feet high.

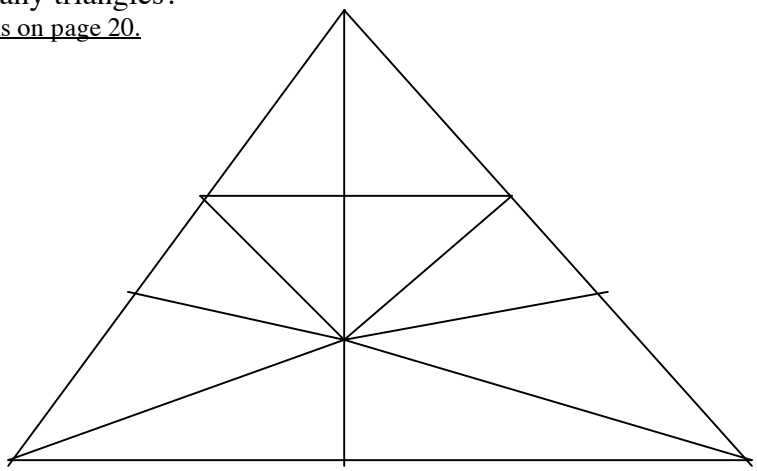
Try solving the following problems by setting up proportions. Answers are on page 20.

1. At the same time each day, a 6-foot person casts a 4-foot shadow. The nearby flagpole casts a 30-foot shadow. How tall is the flagpole?
2. In the late afternoon, a parking meter casts a shadow that is three feet in length. At the same time a street lamp casts a shadow that is 18 feet in length. If the parking meter is four feet high, how high is the street lamp?
3. The Laketown Quilters were making a block with a right triangle that was four inches on the side and five inches on top. They made a paper piece to scale to show the design on a note card. That triangle was one inch on the side. How long was the top?



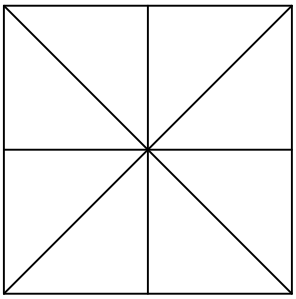
Out into Space

How many triangles?
Answer is on page 20.



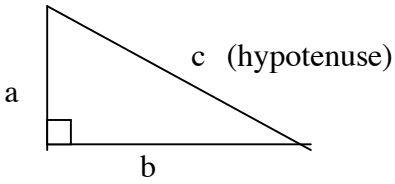
About Math and Life

The Lakeside Quilters Guild's activity for the year was to have each member make a square composed of eight similar triangles. They met several times to plan the design for the quilt which they would raffle at the county fair. The basic block would have two colors of fabric including four of the triangles for each of the colors. The members wanted to know how many different ways they could color half the block (four triangles) with one of the colors. They sat down with a pencil and showed different ways to shade four of the triangles. Draw the design several times on another piece of paper and show at least 10 different ways to color an area equal to half of the square patch (any four triangles). Flips and rotations don't count as new ways. The quilters actually found 13 different possibilities. See if you can find them all.



Pythagorean Relationship

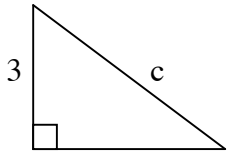
The Pythagorean Theorem was one of the earliest theorems known to ancient civilizations. This famous theorem is named for the Greek mathematician and philosopher, Pythagoras. Pythagoras founded the Pythagorean School of Mathematics in Cortona, a Greek seaport in Southern Italy. He is credited with many contributions to mathematics although some of them may have actually been the work of his students. On the GED Math Test you will use this relationship to find the length of the missing side of a right triangle.



The **Pythagorean Relationship** is on the GED Math Test formula page:

$a^2 + b^2 = c^2$ a and b are legs, and c is the hypotenuse of a right triangle

The **hypotenuse** is the longest side of a right triangle and is always the side opposite the right angle. The formula can be used to find any missing side as long as the lengths of the other two sides are known.



In the right triangle above, the length of the hypotenuse is not known. Use the formula to find its length.

$a^2 + b^2 = c^2$
$3^2 + 4^2 = c^2$
$9 + 16 = c^2$
$25 = c^2$
$5 = c$ Five is the square root of 25.

Use the formula $a^2 + b^2 = c^2$ to find the missing sides of the following right triangles where sides a and b are given: Answers are on page 20.

Side a	Side b	Side c (hypotenuse)	work space
6	8		
9	12		
5	12		

Pythagorean Triples

Most right triangles do not have all sides that can be measured in whole numbers. The GED Math Test and other standardized test often make use of a few special ratios where the sides can all be measured in whole numbers. Watch for the ratios **3:4:5** and **5:12:13**. These ratios and any numbers directly proportional to them are likely to appear on tests. Complete the chart below to find other sets of numbers that are proportional to these triples. Answers are on page 21.

Side a = **3**	Side b = **4**	Side c (hypotenuse) = **5**
6	8	
30		50
15	20	

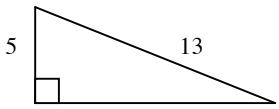
Side a = **5**	Side b = **12**	Side c (hypotenuse) = **13**
10		26
500		1300
	120	130

Practice using the Pythagorean Relationship in the following problems. Remember the formula is on the formula page if you need it. Answers are on page 21.

$a^2 + b^2 = c^2$ a and b are legs, and c is the hypotenuse of a right triangle

1. Alberto walked to school every day by walking east 60 yards and then north 80 yards. In the afternoon he took a shortcut and walked straight through a field from school to home. How long was the shortcut?
   _____

2. Lucy and Linda stood back to back on the football field. They each walked forward 40 feet and then turned left and walked forward 30 feet. How far apart were they? _____

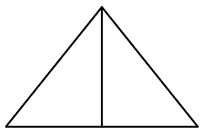
3. 

   What is the length of the missing side? _____

Area of a Triangle

The formula to find the **area of a triangle** is **1/2 base x height**. The height of a triangle is the distance from the base to the opposite angle. This measurement will often be given to you. This triangle has a base of 4 units and a height of 3 units.

A = 1/2 BH
A = 1/2(4)(3)
A = (2)(3)
A = 6 square units

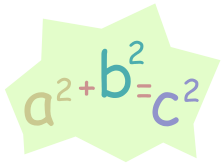


Remember: area is always expressed in square units.

Find the area of the following triangles using the formula. Answers are on page 21.

Base	Height	Area A = 1/2 BH	Work Space
10 feet	6 feet		
3 yards	4 yards		
16 meters	7 meters		
7 miles	3 miles		
12 inches	12 inches		

Formula Review



Match the formulas to their functions: Answers are on page 21.

1. $a^2 + b^2 = c^2$
2. A = 1/2 BH
3. P = 4S
4. A = LW
5. C = πD
6. V = LWH
7. $A = \pi R^2$
8. interest = principal x rate x time
9. P = 2L + 2W
10. $V = S^3$

a) perimeter of a square

b) volume of a rectangular solid

c) simple interest

d) Pythagorean Relationship

e) area of a circle

f) area of a triangle

g) circumference of a circle

h) perimeter of a rectangle

i) volume of a cube

j) area of a rectangle

Mary wanted to purchase a box for shipping. The box had to hold a square tin that was 6 inches on each side. The clerk told her the store had square boxes that were 200, 225, and 250 cubic inches in volume. What is the smallest box that Mary could use?

_____

John was building a circular patio with a radius of 15 feet. He was using bender board to build forms around the edge How many fee of bender board did he need to go around the outside edge?

_____

Joey opened his first savings account when he was just six years old. He started the account with $100.00 that his grandfather gave him for his birthday. The account yielded 4.5% interest. How much money was in the account at the end of the first six months?

_____

Work Space

STRATEGY SESSION

Work Backwards

It is sometimes helpful on multiple choice tests to work backwards from the answers to help you eliminate answers that are obviously wrong or to give you clues if you are not sure how to solve the problem. Of course, this strategy is not one you want to rely on very often, but in can be very helpful occasionally.

Orson drove from San Francisco to the Los Angeles area. His total distance was 327 miles. He hoped to average 60 miles per hour but knew he may be slowed down by the rush hour on the freeway. He planned to pick up his brother, Paul, in Bakersfield and planned for a two-hour stop that included lunch. *About* how long should Orson plan for the trip?

(1) 5 hours
(2) 6 hours
(3) 9 hours
(4) 13 hours
(5) 14 hours

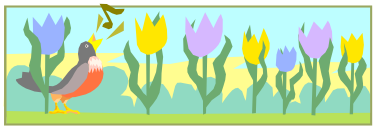
Follow these steps:

- Look at the answer choices and see if any can be eliminated because they are either too small, too large, or absurd. Eliminate by making notes on your scratch paper or keeping it in your head. Remember, on the GED Math Test you cannot make marks on the test booklet. On worksheets, you can put a light pencil mark through the answers that you are eliminating.
- Look at the remaining choices and then make calculations if you need to.
- If a formula is needed, you can actually plug the answers into the formula if you need to in order to see which answer makes the formula true.

In the problem above, you can eliminate choice (1) and (2) because the time is too short to allow for the two-hour stop even if Orson did average 60 miles per hour.
Choice (4) and (5) are quite large and would have Orson traveling less than 30 miles per hour on the average. Therefore, (3) is the best choice for approximately how long it would take him.

Cicero planted a rectangular garden that was 24 square feet in area. Which of the following could **not** be the dimensions of the garden?

1) 3 feet x 8 feet
2) 6 feet x 4 feet
3) 2 feet x 12 feet
4) 9 feet x 3 feet
5) 1 foot x 24 feet

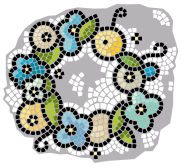


Using the formula for the area of a rectangle: A = LW, look quickly for the pair of numbers that do not equal 24 when multiplied together. This technique allows you to quickly choose (4) without checking all of the others.

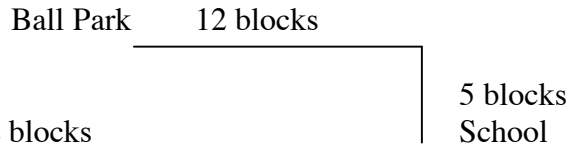
Practice working backwards to find the answers to the following problems. If you want to eliminate an answer, go ahead and cross it out. It is good practice for now. Just remember that you cannot do that on the Official Practice Tests or actual GED Math Test.
Answers are on page 21.

1. Cicero was so happy with this garden that he decided to try a more difficult one and plant a circular garden. He made a circle with a circumference of *approximately* 100 feet. Which answer is closest to the diameter of the circle?

   (1) 5 feet
   (2) 7 feet
   (3) 10 feet
   (4) 15 feet
   (5) 30 feet



2. The Brixton family loved to ride bicycles on Sunday. Last week they rode from the ball park to the school, turned around and rode back. How many blocks did they ride?



   (1) 12 blocks
   (2) 13 blocks
   (3) 17 blocks
   (4) 34 blocks
   (5) 51 blocks

3. Uncle Ed always bragged about how good he was at estimating. At the county fair in June, he won a huge jar of jelly beans by having the closest guess to the number of beans in a gallon jar. "It was easy," he bragged. He said he went home and counted the number of beans in a tablespoon and came up with 12. Then he just went from there. How many beans did Uncle Ed submit for the winning guess?

   (1) 1,000
   (2) 3,000
   (3) 6,000
   (4) 10,000
   (5) 30,000

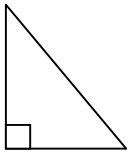
Work Backwards

GED Exercise

1. A ladder rested against a building 12 feet above the ground. The ground formed a right angle with the building. The bottom of the ladder was 5 feet away from the building. How tall was the ladder?

1) 10 feet
2) 12 feet
3) 13 feet
4) 14 feet
5) 15 feet

2. The right triangle below has a height of 4 inches and a base of 3 inches. What is the area of the triangle?

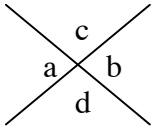


1) 5 square inches
2) 6 square inches
3) 7 square inches
4) 10 square inches
5) 12 square inches

3. The Boy Scouts met on a Saturday. They were learning to use measurement outside using objects and the sun to earn the Outdoorsman merit badge. The leader was six feet tall and cast a 9-foot shadow when he stood next to a flagpole that cast a 33-foot shadow. How tall is the flagpole?

1) 20 feet
2) 22 feet
3) 23 feet
4) 25 feet
5) 36 feet

4. Which statement is true about the following angles?



1) a = c
2) b = d
3) a = d
4) b = c
5) c = d

5. Which of the following formulas would you use to find the area of a circle?

1) $A = \pi R^2$
2) $a^2 + b^2 = c^2$
3) $A = LW$
4) $A = 1/2\ BH$
5) $L = \frac{A}{W}$

6. Angle ABC and angle CBD are supplementary. If angle CBD measures 70 degrees, what is the measure of angle ABC?

1) 20 degrees
2) 90 degrees
3) 100 degrees
4) 110 degrees
5) 120 degrees

Answers and Explanations

Words You Need to Know page 1

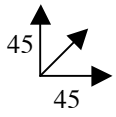
1. d.
2. c.
3. b.
4. e.
5. a.

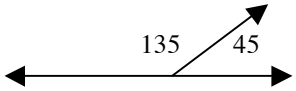
Naming Angles page 4

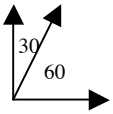
EFG or F	HIJ or I	KLM or L	NOP or O
straight	right	acute	obtuse

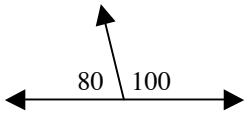
Complementary/Supplementary page 5

Definition	Angle A	Angle B
Complementary	45°	45°
Complementary	85°	5°
Complementary	30°	60°
Complementary	52°	38°
Supplementary	110°	70°
Supplementary	20°	160°
Supplementary	30°	150°
Supplementary	100°	80°
Complementary	44°	46°
Supplementary	74°	106°
Complementary	28°	62°
Supplementary	170°	10°

a. 

b. 

c. 

d. 

e. answers will vary; pair must total 90°

Parallel Lines and Transversals page 5

Question	Answer(s)
What are the four interior angles?	3, 4, 5, and 6
What are the four exterior angles?	1, 2, 7, and 8
Which angle corresponds to angle 5?	1
Which angle corresponds to angle 2?	6
Which angle corresponds to angle 4?	8
Which angle corresponds to angle 7?	3
Which is the alternate exterior angle to angle 8?	1
Which is the alternate interior angle to angle 6?	3

Which angles are supplementary to angle 5?	6 and 7
Which angle(s) is/are vertical to angle 1?	4
What is the exterior angle on the same side of the transversal as angle 1?	7

Measure Up page 8

Right angle	d.
Spring day in southern California	h.
Straight angle	f.
Freezing point of water in Canada	c.
Circle	i.
Boiling point of water in New York	j.
Obtuse angle	b.
Zero angle	a.
Very hot day in Death Valley	g.
Very cold day in Wisconsin	e.
Acute angle	k.

Types of Triangles page 10

Angle A	Angle B	Angle C	Type of Triangle
60°	60°	60°	Equilateral
90°	40°	50°	Right
70°	35°	75°	Scalene
55°	55°	70°	Isosceles
35°	90°	55°	Right
110°	30°	40°	Scalene
33°	70°	77°	Scalene
65°	50°	65°	Isosceles
30°	107°	43°	Scalene

Similar Triangles page 11

1. 45 feet
2. 24 feet
3. 1 1/4 inches

Out into Space page 11

27 triangles

About Math and Life page 12

Check your answers with your teacher or tutor.

Pythagorean Relationship page 13

Side a	Side b	Side c (hypotenuse)
6	8	10
9	12	15
5	12	13

Pythagorean Triples page 13

Side a = **3**	Side b = **4**	Side c (hypotenuse) = **5**
6	8	10
30	40	50
15	20	25

Side a = **5**	Side b = **12**	Side c (hypotenuse) = **13**
10	24	26
500	1200	1300
50	120	130

Pythagorean Relationship page 14

1. 100 yards
2. 100 feet
3. 12

Area of a Triangle page 14

Base	**Height**	**Area**	**A = 1/2 BH**
10 feet	6 feet	30 square feet	
3 yards	4 yards	6 square yards	
16 meters	7 meters	56 m^2	
7 miles	3 miles	10.5 square miles	
12 inches	12 inches	72 square inches	

Formula Review page 15

1. d.
2. f.
3. a.
4. j.
5. g.
6. b.
7. e.
8. c.
9. h.
10. 1.

225 cubic inches
95 feet
$102.25

Strategy Session pages 16 and 17

(4) 9 feet x 3 feet
1. (5)
2. (4)
3. (2)

GED Exercise

1. 3) 2. 2) 3. 2)
4. 5) 5. 1) 6. 4)