Day 12: Triangles and Polygons



COMUNIDADES LATINAS UNIDAS EN SERVICIO

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Which shapes can you identify?











What's the difference between area and perimeter?



The area of a figure is the amount of space it covers.

Use a formula to find the area of some figures:

- **Rectangle** = length x width x height
- Square = side x side = s^2
- **Parallelogram** = base x height = bh
- **Triangle** = ½ base x height = ½*bh*

Area

Perimeter

The perimeter of a figure is the sum of its side lengths.

If a figure has two or more congruent sides, you may use a formula:

- Rectangle = $2 \times \text{length} + 2 \times \text{width}$ OR 2l + 2w = 2(l + w)
- **Square** = 4 x side length = 4s
- **Triangle** = side + side + side

Area Vs. Perimeter Find the area and perimeter of the given shape if each square represents 1 cm².



-More About Triangles...

Recall: Triangles Classified In Two Ways

1. Size of Angle

2. Length of Sides

- **Acute**-All Angles
 less than 90
 degrees
- b) <u>Obtuse</u>-One Angle Over 90 degrees
- c) <u>Right</u>-One 90 degree angle

- a) Equilateral-All three sides equal in length
- b) <u>Isosceles</u>-Two sides of equal length
- c) <u>Scalene</u>-No sides of equal length

This is a right triangle:



We call it a <u>right</u> triangle because it has a <u>right</u> angle.



The measure of a right triangle is 90°



This little square tells you it's a right triangle



About 2,500 years ago, a Greek mathematician named Pythagorus discovered a special relationship between the sides of right triangles.



He realized that if you have a right triangle,



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and you square the lengths of the two sides that make up the right angle,



and add them together,



you get the same number you would get by squaring the other side.



Let's make sure that's correct...

 $\sqrt{3^2} = 9$ $\sqrt{4^2} = 16$ $\sqrt{5^2} = 25$ $\sqrt{9} + 16 = 25$ • • • The Pythagoream Theorem says that, given the right triangle with legs a and b and hypotenuse c, Then: $a^2 + b^2 = c^2$





С

Suppose you drive 48 miles west...



then turn south and drive 36 miles...



How far are you from where you started?





Find the length of a diagonal of the rectangle:

15 inches



8 inches



16. Laptop monitors are measured diagonally. Mona's laptop monitor measures 6 inches tall by 8.5 inches wide. What is her monitor's measurement?

A. 10 inchesB. 10.2 inchesC. 10.4 inchesD. 10.8 inches



Ladder Problem

A ladder leans against a second-story window of a house.

If the ladder is 25 meters long,

and the base of the ladder is 7 meters from the house,

how high is the window?



A ladder leans against a second-story window of a house.

The ladder is 25 meters long. The feet of the ladder are 7 meters from the house.

How high is the window?



Ladder Problem

Solution

- First draw a diagram that shows the sides of the right triangle.
- Label the sides:
 - Ladder is 25 m
 - Distance from house is 7
 m
- Use $a^2 + b^2 = c^2$ to solve for the missing side.



Distance from house: 7 meters

Henry is building a walkway through a rectangular garden as shown in the diagram below.



18. If the length of the walkway is 40 yards and the width of the garden is 12 yards, what is the approximate length of the garden in yards?

A. 28.4	
B. 38.2	
C. 41.8	;
D. 52.3	





Polygons

Remember...

- A polygon is a closed figure with three or more sides.
- Triangles, rectangles are all examples of polygons.
- A polygon is named according to its number of sides:



A hexagon has 6 sides

What's the difference between a regular and irregular polygon?



Irregular Polygons Angles equal but sides not equal Sides equal but angles not equal Neither sides equal nor angles equal



The perimeter of the irregular pentagon on the right is greater than the perimeter of the regular pentagon on the left.

- 1. A regular hexagon has a side length of 5 inches. What is the perimeter of the hexagon?
 - A. 11 in.
 B. 25 in.
 C. 30 in.
 D. 36 in.



DIRECTIONS: Study the information and figures, read each question, and choose the **best** answer.

The figures below have the same perimeter.



10. What is the perimeter of each figure?

A. 30 cm B. 31.5 cm C. 37.5 cm D. 45 cm

11. What is the missing side length in the irregular polygon?

A. 6 cm B. 6.3 cm C. 7 cm D. 7.5 cm



+ 75% 🕀

Homework!

Active Assignments		
Week 12		
To begin, select an a	activity from All Activities	Select New Activity
All Activities	Completion: 0/5 (0%)	No Due Date