Warm up:

Determine whether the given measurements are that of a right triangle.

10 cm, 15 cm, 20 cm $a^2 + b^2 = c^2$

$10^2 + 15^2 = 20^2$ NO
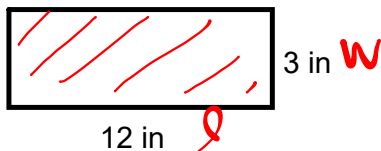
$100 + 225 \neq 400$

7 in, 24 in, 25 in

$7^2 + 24^2 = 25^2$ yes

$49 + 576 = 625$

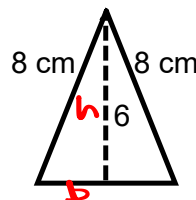Given the formulas determine area and perimeter/circumference of the given shapes.

A = lw (or bh)   *A = 1/2 bh* $A = \pi r^2$

                                                 $\underline{C = 2\pi r}$

3 in w

12 in l

$A = 12(3)$

$36 in^2$

$P = 12 + 3 + 12 + 3$

$30 in$

8 cm   8 cm

h 6

b

4 cm

$A = \frac{1}{2}(4)(6)$

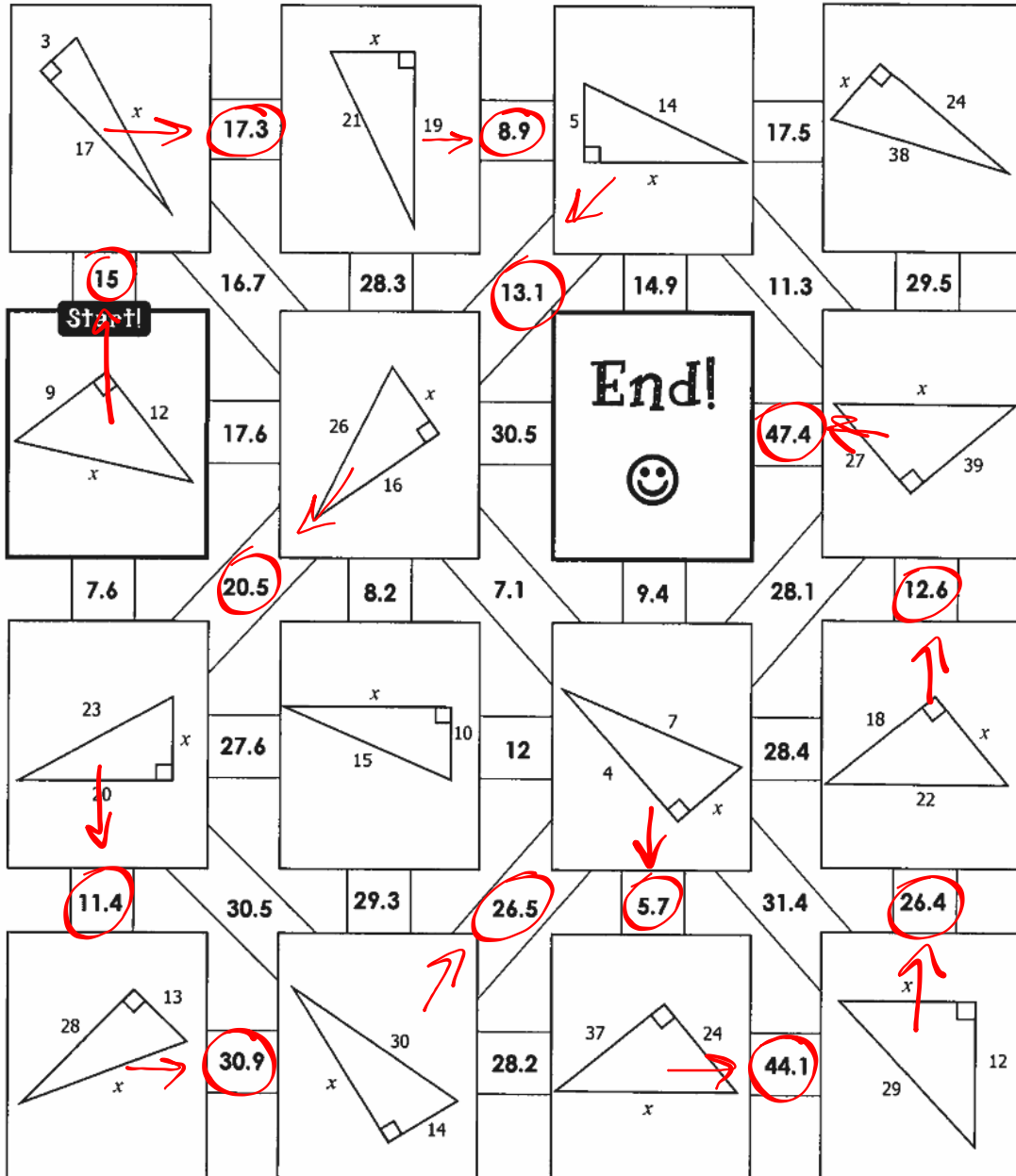$12 cm^2$

$P = 4 + 8 + 8$

$20 cm$

3 m

R
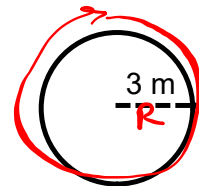
$A = 3.14(3)^2$

$28.3 m^2$

$C = 2(3.14)(3)$

$18.8 m$

1

Pythagorean Theorem Maze!

Directions: Find each missing side. Round all answers to the nearest tenth.
Use your solutions to navigate through the maze. **Staple all work to this paper!**
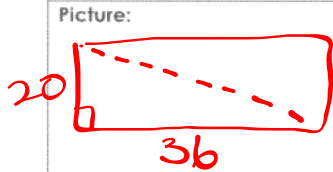
homework

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THE PYTHAGOREAN THEOREM *Word Problems*

Many real world problems can be modeled and solved using the Pythagorean Theorem.
When solving these problems, it is always helpful to draw a picture!

1. A flat-screen TV in the shape of a rectangle has a width of 36 inches and a height of 20 inches. Find the length of the diagonal.
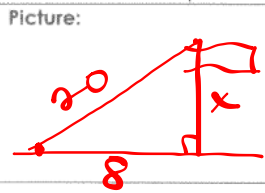
Picture:	Solve:
(rectangle with 20 and 36 labeled, diagonal drawn)	$20^2 + 36^2 = x^2$ $400 + 1296 = x^2$ $\sqrt{1696} = \sqrt{x^2}$ Solution: **41.2 in**

2. A 20-foot piece of wire is attached from the top of a flagpole to a stake in the ground 8 feet from the base of the pole. Find the height of the flagpole.
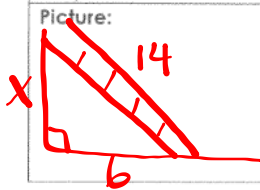
Picture:	Solve:
(right triangle with 20, x, 8 labeled)	$8^2 + x^2 = 20^2$ $64 + x^2 = 400$ $-64 \qquad -64$ $\sqrt{x^2} = \sqrt{336}$ Solution: **18.3 ft**

3. A 14-foot ladder is leaned against a wall. If the base of the ladder is 6 feet from the wall, how high up the wall will the ladder reach?

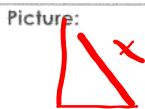| Picture:	Solve:
(right triangle with 14, x, 6 labeled)	$x^2 + 6^2 = 14^2$ Solution: **12.6 ft**

4. Josh and Ben spotted a bear in the woods while riding their bikes. Josh rode 3 miles north and Ben rode 2 miles east. How far apart are the two boys?

Picture:	Solve:
(right triangle with x labeled)	Solution: **3.6 mi**

5. How far from the base of a house should you place a 18-foot ladder if it is to reach a window that is 15 feet high?
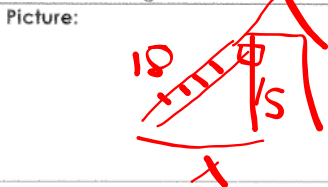
Picture:	Solve:
(ladder against house with 18, 15, x labeled)	Solution: **9.9 ft**

homework

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6. An isosceles triangle has legs that measure 10 feet. If the height of the triangle is 7 feet, find the length of its base.

Picture:	Solve:
P 10 7	
	Solution:

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7. A football field is 120 yards long by 53 yards wide. If a player runs diagonally from one corner to the opposite corner, how far will they travel?

Picture:	Solve:
	Solution:

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8. On a map, Norristown is 18 miles south of Lincoln, and Lincoln is 29 miles west of Allenport. Find the distance from Norristown to Allenport.

Picture:	Solve:
	Solution:

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9. A set of stairs is 10 feet tall and covers a horizontal distance of 12 feet. If a handrail is to be installed that extends the entire length of the stairs, what length must it be?

Picture:	Solve:
	Solution:

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10. Cara is flying a kite at the park using a string that is 42 meters long. She notices that the kite is directly above her friend Leah. If Cara and Leah are standing 36 meters apart, how high is the kite?

Picture:	Solve:
	Solution:

Complete the group practice SOL in
Google Classroom

18, 19, 20, 21, 22, 27, 28