Name: _____
Date: _____

Math 8

Unit 2 Review ~ Squares, Cubes, & The Pythagorean Theorem

S1: I can identify perfect squares, determine square roots of real perfect squares, and relate perfect squares to area.

1. Show that 16 is a perfect square using a diagram, symbols, **and** words.

2. Evaluate the following.

Developing	Proficient	Extending
9^2	21^2	-17^2
$\left(\frac{2}{7}\right)^2$	$\left(\frac{12}{17}\right)^2$	$\left(\frac{-1}{14}\right)^2$
0.8^2	1.5^2	0.04^2
$\sqrt{4}$	$\sqrt{144}$	$-\sqrt{400}$
$\sqrt{81}$	$\sqrt{256}$	$\sqrt{-100}$
$\sqrt{\frac{36}{49}}$	$\sqrt{\frac{81}{169}}$	$\sqrt{\frac{121}{484}}$
$\sqrt{0.25}$	$\sqrt{1.21}$	$\sqrt{0.0144}$

3. Find the **area** of a square with each side length.

Developing	Proficient	Extending
7 cm	12 mm	2.4 m

4. Find the **side length** of a square with each area.

Developing	Proficient	Extending
25 m^2	169 mm^2	1.96 cm^2

5. The area of a square is 121 cm^2. What is the perimeter of the square?

- **S2: I can estimate non-perfect square roots using benchmarking.**

1. These numbers are not square numbers. Which two consecutive perfect squares is each number between?

3	47	111	180

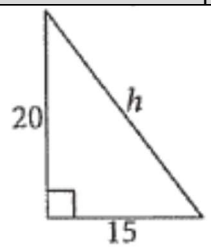
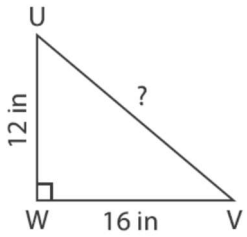
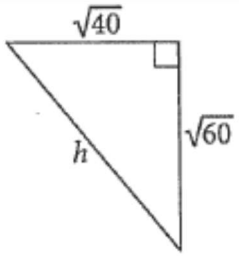
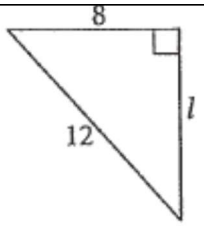
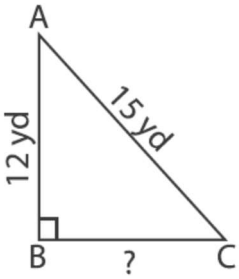
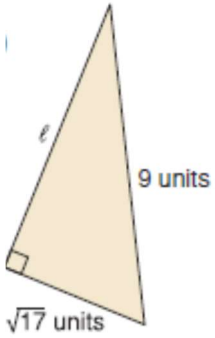
2. Use benchmarking to estimate each square root to the nearest tenth (one decimal place).

Developing	Proficient	Extending
$\sqrt{6}$	$\sqrt{130}$	$\sqrt{221}$
$\sqrt{55}$	$\sqrt{190}$	$\sqrt{272}$

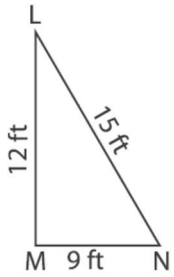
3. Which is the better estimate of $\sqrt{72}$: 8.4 or 8.5? How do you know?

- **S3: I can apply the Pythagorean Theorem to right triangles to find a missing side.**

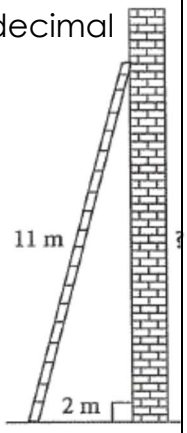
1. Find the length of the indicated side in the triangle below. Please show all work and estimate your answer to one decimal place if necessary.

Developing	Proficient	Extending
		
		

2. Determine whether a triangle with the given side lengths is a right triangle. Please show your work to explain your thinking.

Developing	Proficient	Extending
	A triangle has side lengths 6 cm, 4 cm, and 10 cm	In triangle ABC, the sides AB, BC, and AC measure 24 ft, 10 ft, and 26 ft respectively. Prove that ABC is a right triangle.

3. Solve the given problem involving a right triangle. Please show all work and answer with a complete sentence.

Developing	Proficient	Extending
How high up the wall does the ladder reach? Answer to 1 decimal place. 	A ship travels for 14 km toward the south. It then changes direction and travels for 9 km toward the east. How far does the ship have to travel to return directly to its starting point? Answer to one decimal place.	A tree is axed 8 feet above its base. When the tree fell to the ground, the tip of the tree lay 10 feet away from its base. Determine the length of the part of the tree that was axed.

- **S4: I can identify perfect cubes, determine cube roots of real perfect cubes, and relate perfect cubes to volume.**

1. Evaluate the following.

Developing	Proficient	Extending
5^3	11^3	$(-10)^3$
4^3	$\left(\frac{5}{6}\right)^3$	$\left(\frac{7}{-8}\right)^3$
1^3	0.3^3	1.1^3
$\sqrt[3]{8}$	$\sqrt[3]{216}$	$\sqrt[3]{-512}$
$\sqrt[3]{216}$	$\sqrt[3]{\frac{343}{343}}$	$\sqrt[3]{\frac{27}{216}}$
$\sqrt[3]{27}$	$\sqrt[3]{0.125}$	$\sqrt[3]{0.000008}$

2. Find the **volume** of a cube with each side length.

Developing	Proficient	Extending
1 m	10 cm	1.1 mm

3. Find the **side length** of a cube with each volume.

Developing	Proficient	Extending
8 cm^3	512 in^3	0.512 km^3