Name: _____   Date: _____   Period: _____

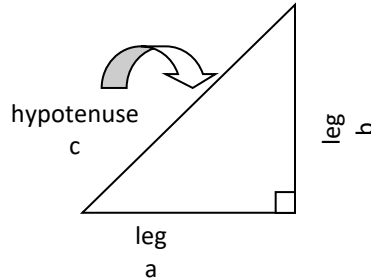**Pythagorean Theorem Notes**

In any RIGHT triangle, the sum of the squares of the two legs is equal to the square of the hypotenuse.

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

The hypotenuse is the longest side, always opposite the right angle, and always represented by c.

hypotenuse
c

leg
a

leg
b

The legs are the sides that make up the right angle and are represented by a & b

ALL PROBLEMS START WITH WRITING THE FORMULA!!!

Use the Pythagorean Theorem to find the length of the hypotenuse of each right triangle. The lengths of the legs are given. Round decimal answers to the **nearest tenth**.

1.   a = 5 cm   b = 18 cm

3.   a = 15 in   b = 20 in

2.   a = 7 yd   b = 11 yd

4.   a = 6 km   b = 6 km

Solve each equation.

5. $13^2 = a^2 + 5^2$

8. $25^2 = a^2 + 7^2$

6. $29^2 = 21^2 + b^2$

9. $340^2 = a^2 + 160^2$

7. $17^2 = 8^2 + b^2$

10. $500^2 = 300^2 + b^2$

The measures of the three sides of a triangle are given. Determine if each triangle is a right triangle.

1.   8 km, 15 km, 17 km

2.   8 mm, 9 mm, 15 mm

3.   15 in, 20 in, 25 in

4.   10 mi, 20 mi, 30 mi