Pythagorean Theorem Practice Worksheet

Name Key   **Class Period**_____

> ## Pythagorean Theorem
>
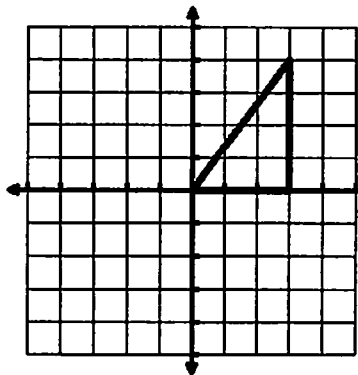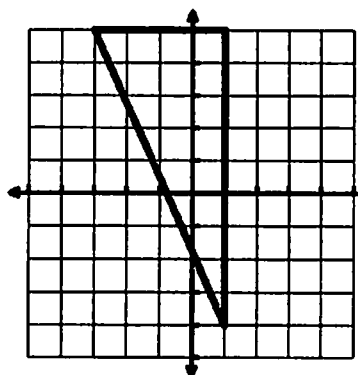> $$leg^2 + leg^2 = hyp^2$$
>
> OR
>
> $$a^2 + b^2 = c^2$$
>
> Where a and b are the legs and c is the hypotenuse of a right triangle.

Use the **Pythagorean Theorem** to find the length of each hypotenuse:

1.

$3^2 + 4^2 = c^2$

$9 + 16 = c^2$

$25 = c^2$

$\boxed{c = 5}$

2.

$4^2 + 9^2 = c^2$

$16 + 81 = c^2$

$97 = c^2$

$\boxed{c = \sqrt{97}}$

Use the Pythagorean Theorem to find the missing side. <u>When necessary, give the exact answer as well as a decimal rounded to the nearest tenth</u>.

3.   leg = 8, leg = 15, hyp = __17__

$8^2 + 15^2 = c^2$

$64 + 225 = c^2$

$289 = c^2$

$c = 17$

4. leg = 3, leg = $3\sqrt{15}$, hyp = 12

$3^2 + b^2 = 12^2$

$9 + b^2 = 144$

$\underline{-9 \qquad\qquad -9}$

$b^2 = 135$

$\boxed{b = 11.6}$

$\boxed{b = 3\sqrt{15}}$

5. a = __6__, b = 8, c = 10

$$a^2 + 8^2 = 10^2$$
$$a^2 + 64 = 100$$
$$\ -64\quad\ -64$$
$$a^2 = 36$$
$$\boxed{a = 6}$$

6. a = 7, b = __4__, c = $\sqrt{65}$

$$7^2 + b^2 = (\sqrt{65})^2$$
$$49 + b^2 = 65$$
$$-49\quad -49$$
$$b^2 = 16$$
$$\boxed{b = 4}$$

7. c = __13__, b = 5, a = 12

$$12^2 + 5^2 = c^2$$
$$144 + 25 = c^2$$
$$169 = c^2$$
$$\boxed{C = 13}$$

8. b = 9, a = $\sqrt{319}$, c = 20

$$a^2 + 9^2 = 20^2$$
$$a^2 + 81 = 400$$
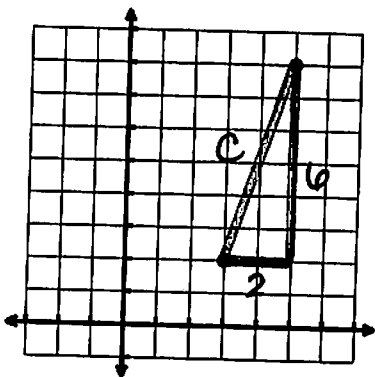$$\ -81\quad\ -81$$
$$a^2 = 319$$
$$\boxed{a = \sqrt{319}}\quad \boxed{a = 17.9}$$

Use the **Pythagorean Theorem** to find the distance between each pair of points.
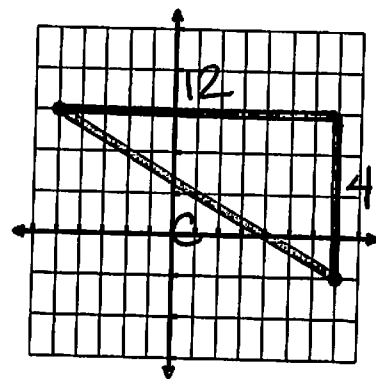
9.

$$2^2 + 6^2 = c^2$$
$$4 + 36 = c^2$$
$$40 = c^2$$
$$\boxed{c = 2\sqrt{10}}\quad \boxed{c = 6.3}$$

10.

$$4^2 + 12^2 = c^2$$
$$16 + 144 = c^2$$
$$160 = c^2$$
$$\boxed{c = 4\sqrt{10}}\quad \boxed{c = 12.6}$$