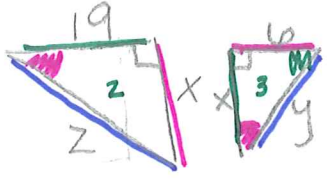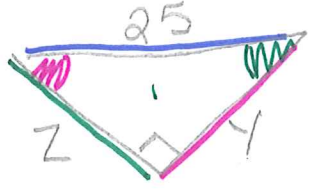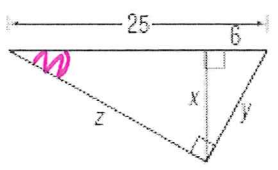Name: **Key**

Geometry

Right Triangle Practice Test

1. Find x, y, and z. Show all of your work.

$x = \sqrt{114}$

$y = 5\sqrt{6}$

$z = 5\sqrt{19}$

Find x

Δ3 $\dfrac{x}{19} = \dfrac{6}{x}$ Δ2

$x^2 = 114$

$\boxed{x = \sqrt{114}}$

Find y

Δ3 $\dfrac{y}{25} = \dfrac{6}{y}$ Δ1

$y^2 = 150$

$\boxed{y = 5\sqrt{6}}$

Find z:

Δ1 $\dfrac{z}{19} = \dfrac{25}{z}$ Δ2

$z^2 = 475$

$\boxed{z = 5\sqrt{19}}$

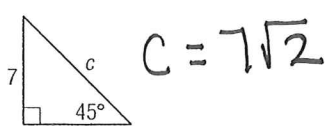2. Verify whether or a not a triangle with the following sides is a right triangle:

$9, \sqrt{65}, 16$

$9^2 + (\sqrt{65})^2 \overset{?}{=} 16^2$

$146 \neq 256$
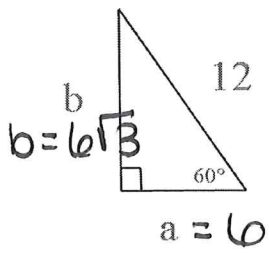
No, Not a right △ because it does not follow the converse of the pythagorean theorem.

3. Find c.

$C = 7\sqrt{2}$

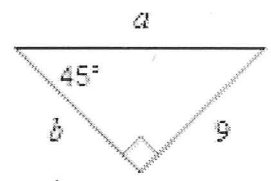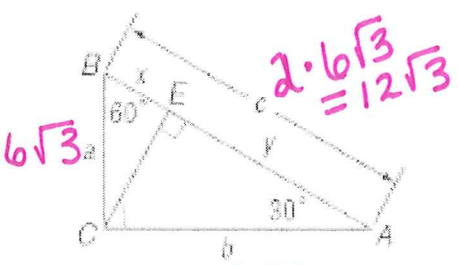4. Find a and b.

$b = 6\sqrt{3}$

$a = 6$

5. Find a and b.

$a = 9\sqrt{2}$

$b = 9$

6. If $\boxed{a = 6\sqrt{3}}$ find b, c, x and y.

Ah!

$\dfrac{2 \cdot 6\sqrt{3}}{= 12\sqrt{3}}$

$6\sqrt{3} \cdot \sqrt{3}$
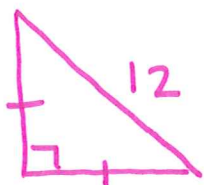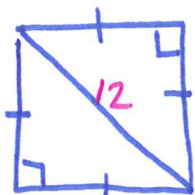$= 6\sqrt{9}$
$= 6 \cdot 3 = 18$

$a = 6\sqrt{3}$

$b = 18$

$c = 12\sqrt{3}$
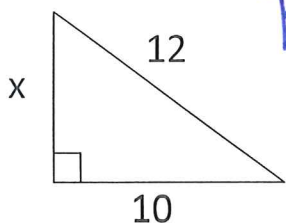
$x = 3\sqrt{3}$

$y = 9\sqrt{3}$

7. The diagonal of a square is 12 in long. What is the measure of each side length?

each side is

$$\frac{12}{\sqrt{2}} = \frac{leg\sqrt{2}}{\sqrt{2}}$$

$$\frac{12}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{12\sqrt{2}}{\sqrt{4}} = \frac{12\sqrt{2}}{2} = \boxed{6\sqrt{2}}$$

8. Find x. Simplify your answer.
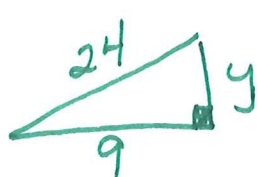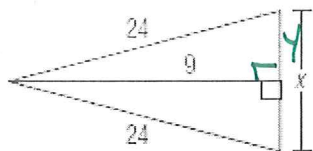
Basic Pyth. Theorem!

$$x^2 + 10^2 = 12^2$$
$$x^2 = 44$$
$$x = \sqrt{44}$$

$$\boxed{x = 2\sqrt{11}}$$

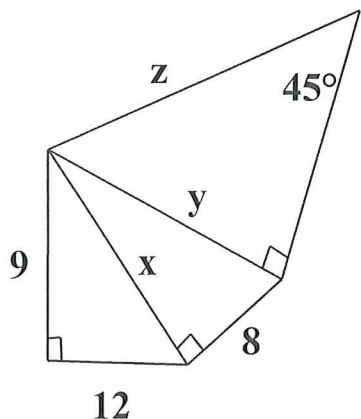**9.** Find x. Simplify your answer.

$$y^2 + 9^2 = 24^2$$
$$y^2 = 495$$
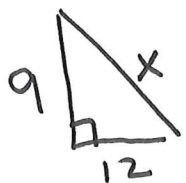$$y = 3\sqrt{55}$$

$$x = 2 \cdot 3\sqrt{55}$$

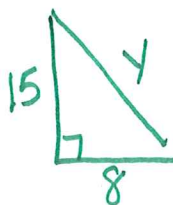$$\boxed{x = 6\sqrt{55}}$$

10. Find x, y, and z.

Find x

$$x^2 = 9^2 + 12^2$$

$$\boxed{x = 15}$$

$$15^2 + 8^2 = y^2$$
$$289 = y^2$$
$$\boxed{17 = y}$$

$$\boxed{z = 17\sqrt{2}}$$

$$\boxed{\begin{array}{l} x = 15 \\ y = 17 \\ z = 17\sqrt{2} \end{array}}$$