

Name: _____

Hr: _____

Converse of the Pythagorean Theorem & Special Right Triangle HW

Directions: Determine if the set of measures below a) form a right triangle and b) are a Pythagorean Triple.

1) 30, 40, 50

$$30^2 + 40^2 \stackrel{?}{=} 50^2$$

$$2500 = 2500 \checkmark$$

a) yes
b) yes

2) 20, 30, 40

$$20^2 + 30^2 \stackrel{?}{=} 40^2$$

$$1300 \neq 1600$$

a) no
b) no

3) $\frac{3}{7}, \frac{4}{7}, \frac{5}{7}$

$$\left(\frac{3}{7}\right)^2 + \left(\frac{4}{7}\right)^2 \stackrel{?}{=} \left(\frac{5}{7}\right)^2$$

$$\frac{25}{49} = \frac{25}{49} \checkmark$$

a) yes
b) no (not whole #s)

4) $\sqrt{5}, \sqrt{12}, \sqrt{13}$

$$\sqrt{5}^2 + \sqrt{12}^2 \stackrel{?}{=} \sqrt{13}^2$$

$$17 \neq 13$$

a) no
b) no

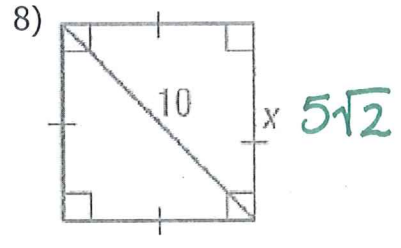
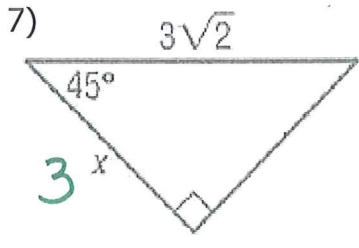
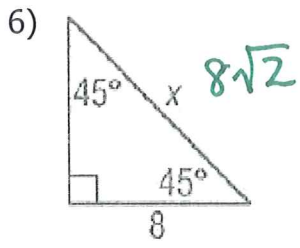
5) 9, 40, 41

$$9^2 + 40^2 \stackrel{?}{=} 41^2$$

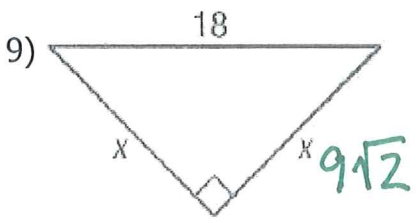
$$1681 = 1681$$

a) yes
b) yes

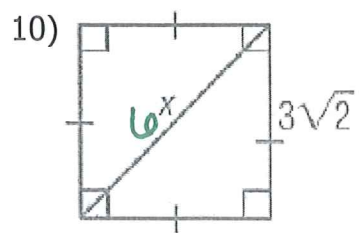
Directions: Find the missing variable(s) in each problem.



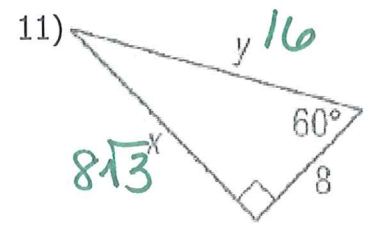
$$\frac{10}{2} \sqrt{2} = 5\sqrt{2}$$

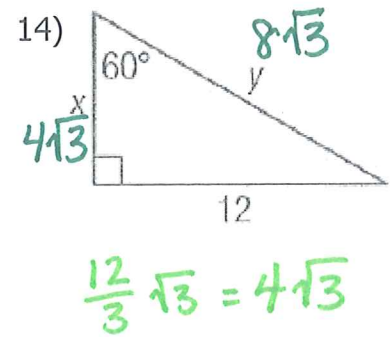
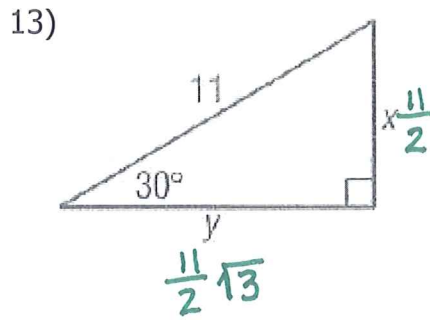
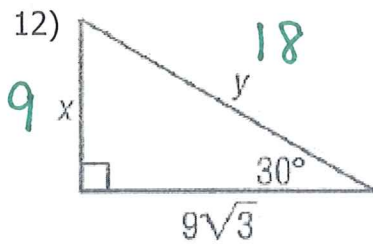


$$\frac{18}{2} \sqrt{2} = 9\sqrt{2}$$



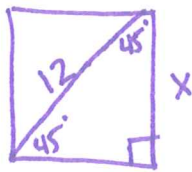
$$(3\sqrt{2})(\sqrt{2}) = 3\sqrt{4} = 3(2) = 6$$





For the following 4 problems, find what it asks you to. If you are stuck, draw a picture to help yourself!

15) Find the perimeter of a square with diagonal 12 cm.



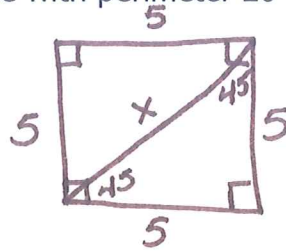
$$\frac{12}{2}\sqrt{2} = 6\sqrt{2} = x$$

$$P = 6\sqrt{2} + 6\sqrt{2} + 6\sqrt{2} + 6\sqrt{2} = \boxed{24\sqrt{2} \text{ cm}}$$

16) Find the diagonal of a square with perimeter 20 inches.

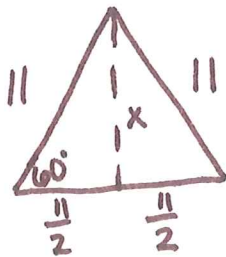
$$P = 20$$

$$\text{side} = \frac{20}{4} = 5$$



$$\boxed{\text{diagonal} = 5\sqrt{2} \text{ in.}}$$

17) The perimeter of an equilateral triangle is ~~32~~³³ cm. Find the length of an altitude of the triangle.

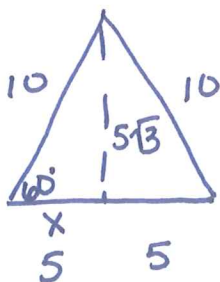


$$P = 33$$

$$s = \frac{33}{3} = 11$$

$$\boxed{x = \frac{11}{2}\sqrt{3} \text{ cm}}$$

18) An altitude of an equilateral triangle is $5\sqrt{3}$ meters. Find the perimeter of the triangle.



$$P = 10 + 10 + 10 = \boxed{30 \text{ m}}$$