

Name: _____

Date: _____

9.4 Practice Problems

1) Simplify $(2\sqrt{3})^2$.

$$2\sqrt{3} \cdot 2\sqrt{3}$$

$$4\sqrt{9}$$

$$4 \cdot 3 = 12$$

2) Do the sides $2\sqrt{15}$, $2\sqrt{3}$, $4\sqrt{3}$ make a right, acute or obtuse triangle?

$$(2\sqrt{15})^2 = 4 \cdot 15$$

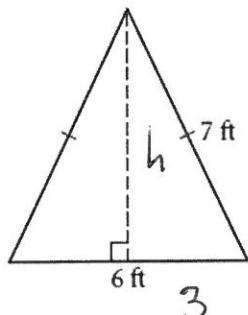
$$(2\sqrt{3})^2 = 4 \cdot 3$$

$$(4\sqrt{3})^2 = 16 \cdot 3$$

$$60 = 12 + 48$$

Right Triangle

3) Find the height of the triangle below.



$$h^2 + 3^2 = 7^2$$

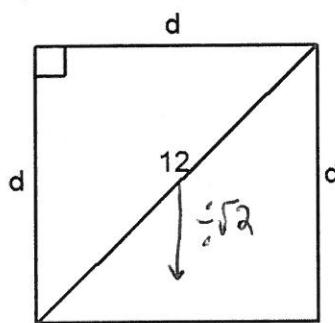
$$h^2 + 9 = 49$$

$$h^2 = 40$$

$$h = \sqrt{40}$$

$4\sqrt{5}$

5) Solve for d.



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

6) Simplify $(4\sqrt{5})(3\sqrt{4})$.

$$12\sqrt{20}$$

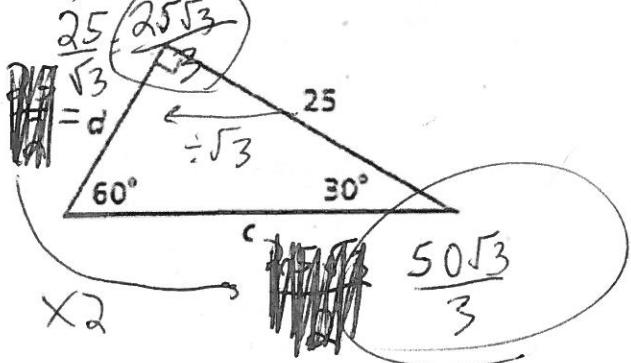
$$12\sqrt{4 \cdot 5}$$

$$12\sqrt{4}\sqrt{5}$$

$$12 \cdot 2\sqrt{5}$$

$24\sqrt{5}$

7) Solve for d and c.

8) Simplify $\sqrt{20} + 3\sqrt{45} - \sqrt{5}$.

$$\sqrt{4 \cdot 5} + 3\sqrt{9 \cdot 5}$$

$$2\sqrt{5} + 9\sqrt{5} - \sqrt{5}$$

$$11\sqrt{5} - \sqrt{5}$$

$10\sqrt{5}$

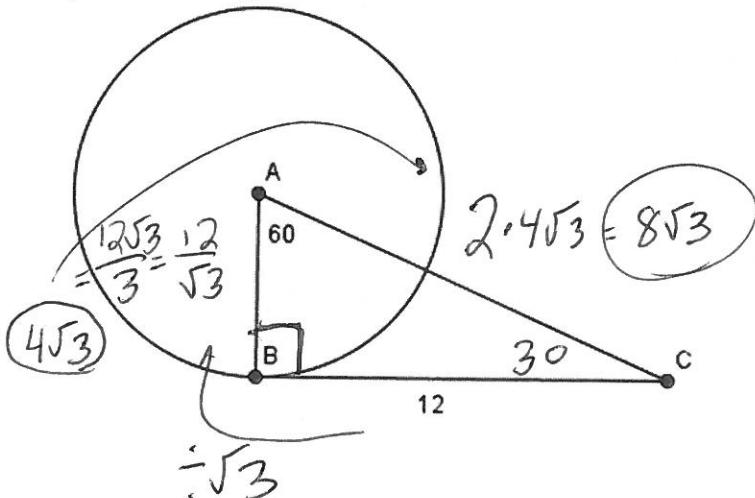
9) Given the sides of a triangle being $8\sqrt{2}$, 4 and 12 decide whether the triangle is right, acute or obtuse?

$$(8\sqrt{2})^2 = 64 \cdot 2 \\ 4^2 = 16 \\ 12^2 = 144 \\ = 128$$

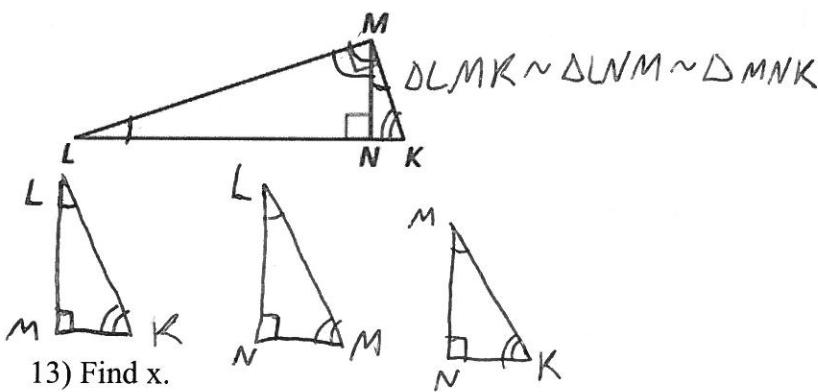
$$\frac{16 + 128}{144} = \frac{144}{144}$$

Right!

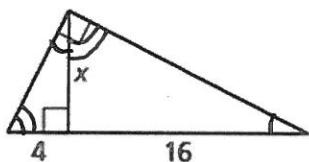
10) Find the length of the radius of circle A.



11) Find three similar triangles.



13) Find x.



$$\frac{x}{16} = \frac{4}{x} \\ x^2 = 64 \\ x = 8$$

15) Find the geometric mean of 14 and 20.

$$\sqrt{14 \cdot 20} = \sqrt{2 \cdot 7 \cdot 4 \cdot 5} \\ \sqrt{4} \sqrt{2 \cdot 7 \cdot 5} \\ 2\sqrt{70}$$

12) Find x.

$$\frac{16}{34} = \frac{x}{30} \\ 34x = \frac{480}{34} \\ x = \frac{480}{34} \approx 14.12$$

14) Find x, y and z.

$$\begin{aligned} \textcircled{1} & \quad z = 16 - 20 \leftarrow \text{Pythagorean Thm.} \\ \textcircled{2} & \quad \frac{16}{12} = \frac{12}{x} \\ 16x &= 144 \\ x &= 9 \\ \textcircled{3} & \quad y^2 + 20^2 = 25^2 \\ y &= 15 \end{aligned}$$

16) Find the geometric mean of 24 and 45

$$\begin{aligned} \sqrt{24 \cdot 45} &= \sqrt{2 \cdot 3 \cdot 4 \cdot 5 \cdot 9} \\ \sqrt{9} \sqrt{2 \cdot 3 \cdot 4 \cdot 5} &\\ 3\sqrt{120} & \end{aligned}$$