

Name: Key

Special Right Triangles and Trig Ratios

Warm Up

1. Directions: Practice simplifying fractions.

$$\frac{3 \div 3}{9 \div 3} = \frac{1}{3}$$

$$\frac{4 \div 4}{12 \div 4} = \frac{1}{3}$$

$$\frac{10 \div 5}{25 \div 5} = \frac{2}{5}$$

$$\frac{15 \div 5}{25 \div 5} = \frac{3}{5}$$

$$\frac{21 \div 3}{27 \div 3} = \frac{7}{9}$$

$$\frac{26 \div 13}{39 \div 13} = \frac{2}{3}$$

$$\frac{3\sqrt{3}}{9} = \frac{3\sqrt{3}}{9}$$

Simplify $\frac{3}{9}$
1st to = $\frac{1}{3}$
 $\frac{1\sqrt{3}}{3} = \frac{\sqrt{3}}{3}$

$$\frac{2\sqrt{2}}{4} = \frac{2\sqrt{2}}{4}$$

Simplify $\frac{2}{4} = \frac{1}{2}$
1st!
 $\frac{1\sqrt{2}}{2} = \frac{\sqrt{2}}{2}$

$$\frac{9}{3\sqrt{3}}$$

Simplify $\frac{9}{3}$
1st
 $\frac{9}{3} = \frac{3}{1}$
Now multiply top + bottom by $\sqrt{3}$
 $\frac{3 \cdot \sqrt{3}}{\sqrt{3}} = \frac{3\sqrt{3}}{\sqrt{3} \cdot \sqrt{3}} = \frac{3\sqrt{3}}{3}$
Now simplify again = $\sqrt{3}$

$$\frac{8}{2\sqrt{2}}$$

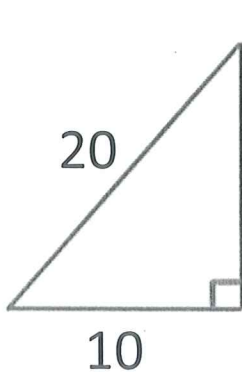
Simplify $\frac{8}{2} = \frac{4}{1}$
Now multiply by $\frac{\sqrt{2}}{\sqrt{2}}$ on top + bottom
 $\frac{4 \cdot \sqrt{2}}{\sqrt{2} \cdot \sqrt{2}} = \frac{4\sqrt{2}}{\sqrt{2} \cdot 2} = \frac{4\sqrt{2}}{2}$
Now simplify again $\frac{4}{2} = \frac{2}{1}$
 $= 2\sqrt{2}$

$$\frac{18\sqrt{3}}{21}$$

Simplify $\frac{18}{21} \div 3$
 $= \frac{6}{7}$
 $\frac{6\sqrt{3}}{7}$

Practice Pythagorean Theorem. Solve for x.

2.



$$10^2 + x^2 = 20^2$$

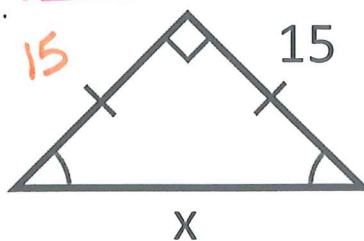
$$100 + x^2 = 400$$

$$-100 \quad -100$$

$$\sqrt{x^2} = \sqrt{300}$$

$\sqrt{300}$
 $\sqrt{100} \cdot \sqrt{3}$
 $10 \cdot \sqrt{3}$
 $x = 10\sqrt{3}$

3.



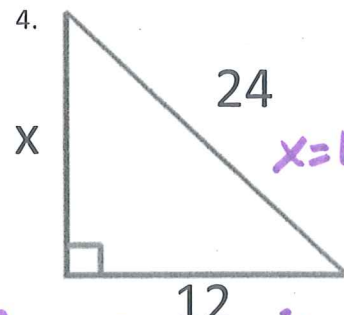
$$15^2 + 15^2 = x^2$$

$$225 + 225 = x^2$$

$$\sqrt{450} = \sqrt{x^2}$$

$\sqrt{450}$
 $\sqrt{225} \cdot \sqrt{2}$
 $15 \cdot \sqrt{2}$
 $x = 15\sqrt{2}$

4.



$$x^2 + 12^2 = 24^2$$

$$x^2 + 144 = 576$$

$$-144 \quad -144$$

$$\sqrt{x^2} = \sqrt{432}$$

$$12 \cdot \sqrt{3}$$