

Warm-up on November 29, 2011

Name: \_\_\_\_\_  
 Period: \_\_\_\_\_

**Examples: Simplify each expression.**

a.  $\sqrt{64}$   
 $= \sqrt{8 \cdot 8}$   
 $= 8$

b.  $\sqrt{12}$   
 $= \sqrt{2 \cdot 2 \cdot 3}$   
 $= 2\sqrt{3}$

**Using the same format as the examples above --- simplify each expression.**

1.  $\sqrt{72}$   
 $= \sqrt{9 \cdot 8}$   
 $= \sqrt{3 \cdot 3 \cdot 2 \cdot 2 \cdot 2}$   
 $= 3 \cdot 2\sqrt{2}$   
 $= 6\sqrt{2}$

$\sqrt{36 \cdot 2}$   
 $= \sqrt{6 \cdot 6 \cdot 2}$   
 $= 6\sqrt{2}$

2.  $\sqrt{24}$   
 $= \sqrt{8 \cdot 3}$   
 $= \sqrt{2 \cdot 2 \cdot 2 \cdot 3}$   
 $= 2\sqrt{6}$

$\sqrt{6 \cdot 4}$   
 $= \sqrt{3 \cdot 2 \cdot 2 \cdot 2}$   
 $= 2\sqrt{6}$

3.  $5\sqrt{12}$   
 $5\sqrt{2 \cdot 6}$   
 $5\sqrt{2 \cdot 2 \cdot 3}$   
 $= 5 \cdot 2\sqrt{3}$   
 $= 10\sqrt{3}$

**Example**

c.  $\frac{2}{\sqrt{3}}$   $\frac{\$}{\$} = 1$   
 $= \frac{2}{\sqrt{3}} \cdot \left(\frac{\sqrt{3}}{\sqrt{3}}\right)$   
 $= \frac{2\sqrt{3}}{3}$

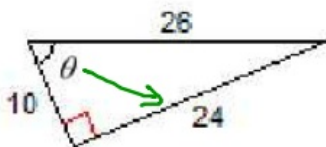
**Simplify each expression.**

4.  $\frac{1}{\sqrt{2}} \left(\frac{\sqrt{2}}{\sqrt{2}}\right)$   
 $= \frac{\sqrt{2}}{2}$

5.  $\frac{5}{\sqrt{7}} \left(\frac{\sqrt{7}}{\sqrt{7}}\right)$   
 $= \frac{5\sqrt{7}}{7}$

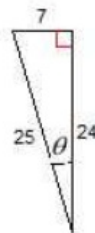
**Identify the ratio for the three trigonometric functions**

6.



$\sin \theta = \frac{24}{26} = \frac{12}{13}$   
 $\cos \theta = \frac{10}{26} = \frac{5}{13}$   
 $\tan \theta = \frac{24}{10} = \frac{12}{5}$

7.

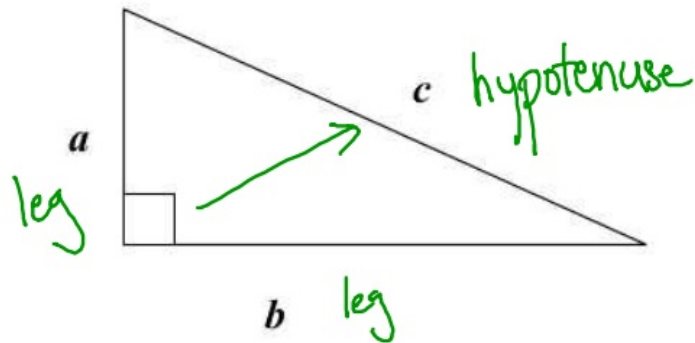


$\sin \theta = \frac{7}{25}$   
 $\cos \theta = \frac{24}{25}$   
 $\tan \theta = \frac{7}{24}$

*Be sure to bring your book next time !*

The Pythagorean Theorem – soon to be your best math friend!

Identify the parts of the right triangle below:

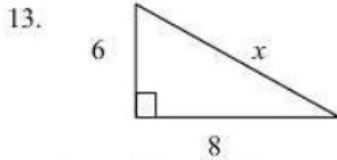


c is ALWAYS the hypotenuse.

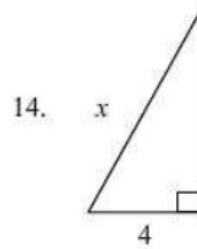
$$\text{leg}^2 + \text{leg}^2 = \text{hyp}^2$$

The Famous Pythagorean Theorem:  $a^2 + b^2 = c^2$

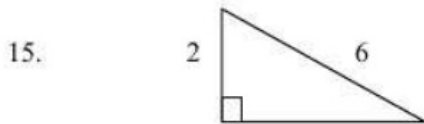
Solve for the indicated side in the right triangles:



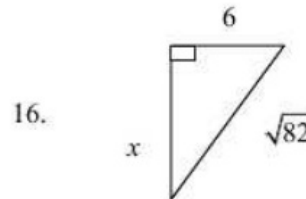
$$\begin{aligned} 6^2 + 8^2 &= x^2 \\ 36 + 64 &= x^2 \\ \sqrt{100} &= \sqrt{x^2} \\ 10 &= x \end{aligned}$$



$$\begin{aligned} 8^2 + 4^2 &= x^2 \\ 64 + 16 &= x^2 \\ \sqrt{80} &= \sqrt{x^2} \\ \sqrt{8 \cdot 10} &= x \\ \sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 5} &= x \\ 4\sqrt{5} &= x \end{aligned}$$



$$\begin{aligned} 2^2 + x^2 &= 6^2 \\ 4 + x^2 &= 36 \\ \sqrt{x^2} &= \sqrt{32} \\ x &= \sqrt{2 \cdot 2 \cdot 2 \cdot 2} \\ x &= 4\sqrt{2} \end{aligned}$$



$$\begin{aligned} 6^2 + x^2 &= (\sqrt{82})^2 \\ 36 + x^2 &= 82 \\ x^2 &= 46 \\ x &= \sqrt{46} \end{aligned}$$

from worksheet

$$\textcircled{15} \frac{\sqrt{10}}{5\sqrt{15}} \left( \frac{\sqrt{15}}{\sqrt{15}} \right)$$

$$= \frac{\sqrt{10 \cdot 15}}{5 \cdot 15}$$

$$= \frac{\sqrt{2 \cdot \cancel{5} \cdot 3}}{5 \cdot 15}$$

$$= \frac{\sqrt{6}}{5 \cdot 15}$$

$$= \frac{\sqrt{6}}{15}$$