

★ Know your perfect squares & special Right Δ 's!

Unit 5 Review!

4, 9, 16, 25, 36, 49, ...

Let us refresh our memories on this topic...

Recall: Simplifying Radicals

Example: $\sqrt{80}$

$$\sqrt{16} \sqrt{5}$$

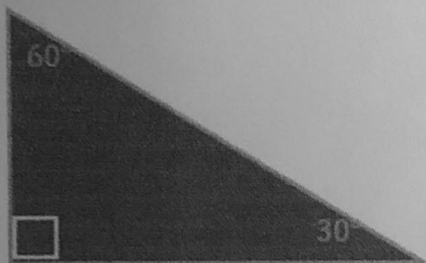
$$\boxed{4\sqrt{5}}$$

Example: $\sqrt{32}$

$$\sqrt{16} \sqrt{2}$$

$$\boxed{4\sqrt{2}}$$

30-60-90 Triangles – Fill in the chart!



Short Leg (x)	Long Leg ($x\sqrt{3}$)	Hypotenuse ($2x$)
10	$10\sqrt{3}$	20
2	$2\sqrt{3}$	4
$4\sqrt{5}$	$4\sqrt{15}$	$8\sqrt{5}$

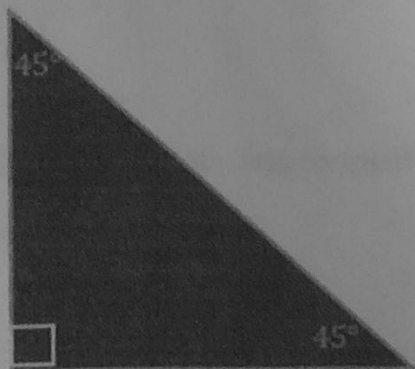
$$\frac{x\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{3}}{\sqrt{3}} = 2$$

$$\frac{2x}{2} = \frac{8\sqrt{5}}{2}$$

$$x = 4\sqrt{5}$$

$$\frac{4\sqrt{5} \cdot \sqrt{3}}{4\sqrt{5}}$$

45-45-90 Triangles – Fill in the chart!

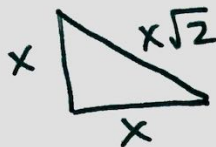


Leg (x)	Leg (x)	Hypotenuse ($x\sqrt{2}$)
14	14	$14\sqrt{2}$
$3\sqrt{6}$	$3\sqrt{6}$	$6\sqrt{3}$
$3\sqrt{5}$	$3\sqrt{5}$	$3\sqrt{10}$

$$3\sqrt{6} \cdot \sqrt{2} = 3\sqrt{12} = 3 \cdot \sqrt{4} \cdot \sqrt{3} = 3 \cdot 2\sqrt{3} = 6\sqrt{3}$$

$$\frac{x\sqrt{2}}{\sqrt{2}} = \frac{3\sqrt{10}}{\sqrt{2}} = 3\sqrt{5}$$

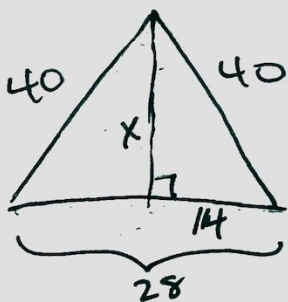
When the legs of a 45-45-90 triangle are x , the hypotenuse is $x\sqrt{2}$ (Color the answer green)



2. Simplify: $\frac{12\sqrt{3}}{\sqrt{11}}$ (color the answer blue)

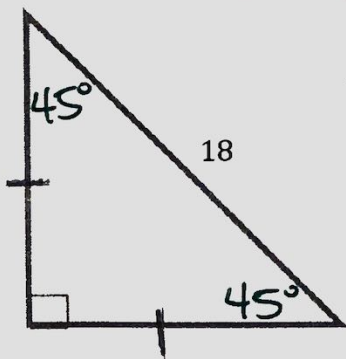
$$\frac{12\sqrt{3}}{\sqrt{11}} \cdot \frac{\sqrt{11}}{\sqrt{11}} = \boxed{\frac{12\sqrt{33}}{11}}$$

3. An isosceles triangle has congruent sides of 40 cm. The base is 28 cm. Find the height of the triangle. Please leave your answer in simplified radical form. (color the answer black)



$$\begin{aligned} x^2 + 14^2 &= 40^2 \\ x^2 + 196 &= 1600 \\ x^2 &= 1404 \\ x &= \sqrt{36 \cdot 39} \\ x &= 6\sqrt{39} \end{aligned}$$

$$\boxed{\text{Height} = 6\sqrt{39}}$$



4. Using the diagram to the left, Find the length of the legs.

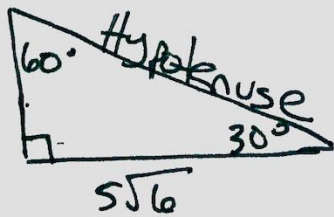
(Color your answer red)

45°	45°	90°
x	x	$x\sqrt{2}$
$9\sqrt{2}$	$9\sqrt{2}$	18

$$\begin{aligned} \frac{x\sqrt{2}}{\sqrt{2}} &= \frac{18}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} \\ &= \frac{18\sqrt{2}}{2} \\ &= \boxed{9\sqrt{2}} \end{aligned}$$

5. In a 30-60-90 triangle, the longest leg is $5\sqrt{6}$, what is the length of the hypotenuse?

(color the answer yellow)



30°	60°	90°
x	$x\sqrt{3}$	2x
$5\sqrt{2}$	$5\sqrt{6}$	$10\sqrt{2}$

$$\begin{aligned} \frac{x\sqrt{3}}{\sqrt{3}} &= \frac{5\sqrt{6}}{\sqrt{3}} \\ x &= 5\sqrt{2} \end{aligned}$$

$$\boxed{\text{Hypotenuse} = 10\sqrt{2}}$$