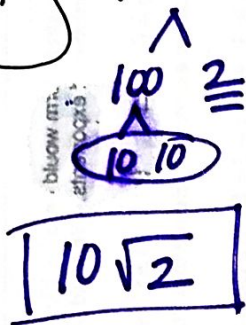


Special Right Δ 's & Rationalizing Denominators

Can you...

* Simplify $\sqrt{200}$?



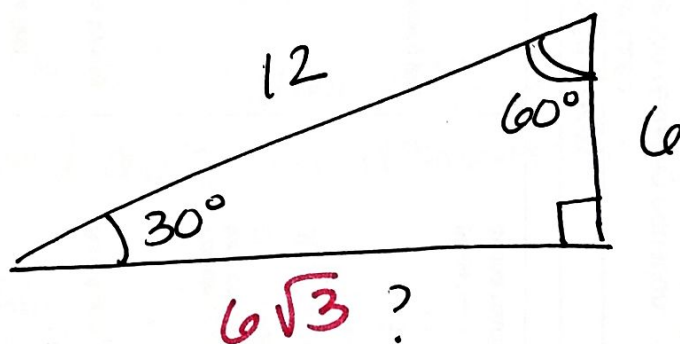
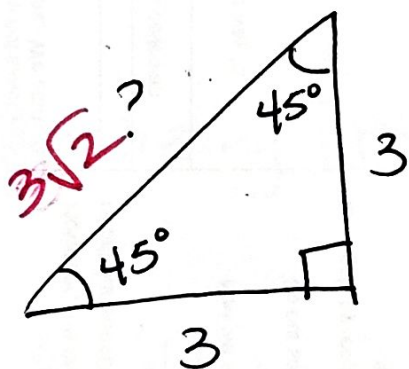
* Multiply $3\sqrt{2} \cdot 1\sqrt{2}$?

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

$5\sqrt{3} \cdot 8\sqrt{2}$?

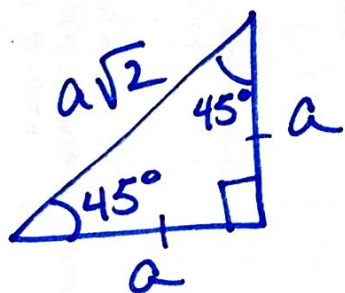
$$\boxed{40\sqrt{6}}$$

Solve for each missing side

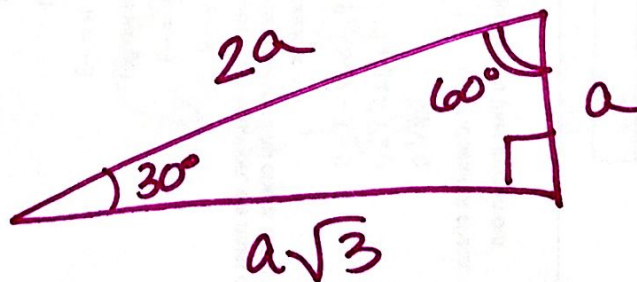


Special Right Δ 's

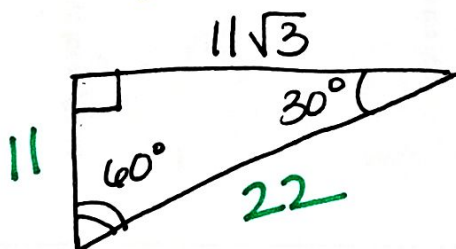
$45^\circ - 45^\circ - 90^\circ$



$30^\circ - 60^\circ - 90^\circ$

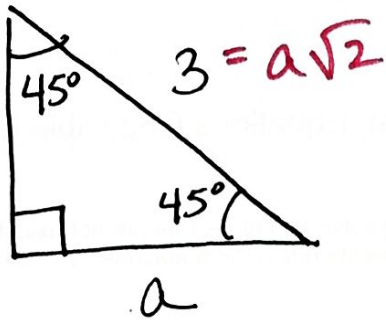


ex:



Find the missing sides

ex:



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

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

* no radicals allowed in denominators

* Rationalize denominator

$$= \frac{3}{\sqrt{2}} \left(\frac{\sqrt{2}}{\sqrt{2}} \right)$$

$$= \frac{3\sqrt{2}}{\sqrt{4}} \Rightarrow \boxed{\frac{3\sqrt{2}}{2}}$$

Rationalizing Denominators = eliminate any/all radicals in denominator.

$$\text{ex: } \frac{6}{\sqrt{3}} \left(\frac{\sqrt{3}}{\sqrt{3}} \right) = \frac{6\sqrt{3}}{\sqrt{9}} = \frac{2\sqrt{3}}{3} = \boxed{2\sqrt{3}}$$

$$\text{ex: } \frac{1}{2 - \sqrt{3}} \left(\frac{2 + \sqrt{3}}{2 + \sqrt{3}} \right)$$

* Multiply numerator & denominator by the conjugate of the denominator.

$$\rightarrow 2 - \sqrt{3} \Rightarrow 2 + \sqrt{3}$$

$$\frac{2 + \sqrt{3}}{4 + 2\sqrt{3} - 2\sqrt{3} - 3}$$

$$\frac{2 + \sqrt{3}}{1} = \boxed{2 + \sqrt{3}}$$

$$\text{ex: } \frac{8 - 5\sqrt{2}}{3\sqrt{2}} \left(\frac{\sqrt{2}}{\sqrt{2}} \right) = \frac{8\sqrt{2} - 5\sqrt{4}}{3\sqrt{4}}$$

$$= \frac{8\sqrt{2} - 10}{3\sqrt{2}}$$

$$= \frac{8\sqrt{2} - 10}{6}$$

$$= \boxed{\frac{4\sqrt{2} - 5}{3}}$$