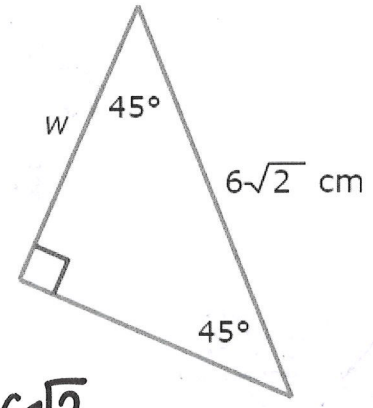
Worked Examples - Special Right Triangles (IXL Geometry Q.5)

1. Find w. Write your answer in simplest radical form.



$\frac{w}{1} = \frac{6\sqrt{2}}{\sqrt{2}}$

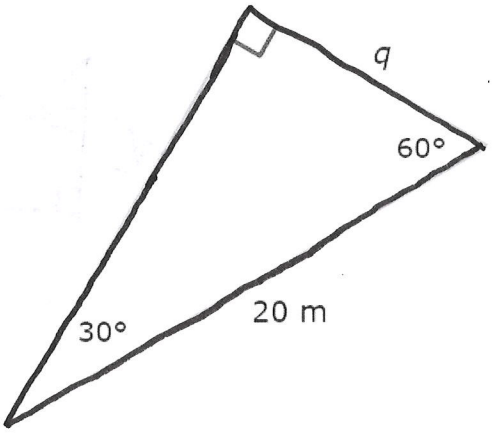
$w\sqrt{2} = 6\sqrt{2}$

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

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

$\boxed{w = 6}$

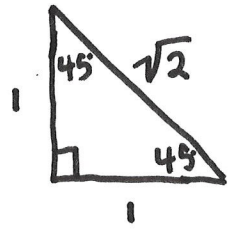
2. Find q. Write your answer in simplest radical form.



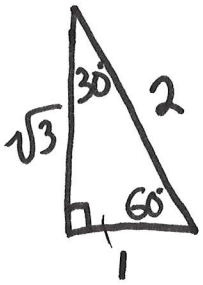
$\frac{q}{1} = \frac{20}{2}$

$\boxed{q = 10}$

Special Right Triangle Parents

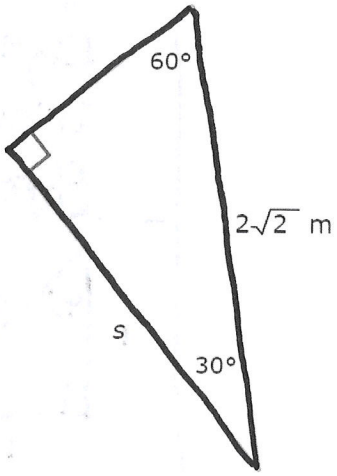


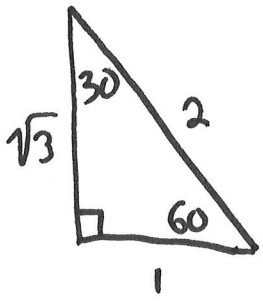
45-45-90



30-60-90

3. Find s. Write your answer in simplest radical form.





$$\frac{s}{\sqrt{3}} \times \frac{2\sqrt{2}}{2}$$

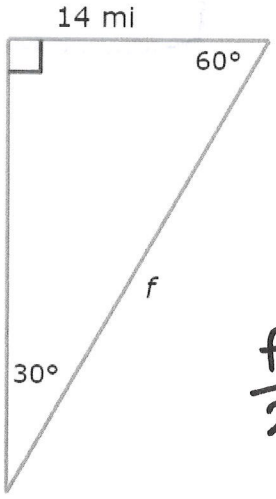
$$s \cdot 2 = 2\sqrt{2} \cdot \sqrt{3}$$

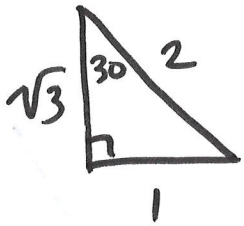
$$2s = 2\sqrt{2 \cdot 3}$$

$$2s = 2\sqrt{6}$$

$$\boxed{s = \sqrt{6}}$$

4. Find f. Write your answer in simplest radical form.



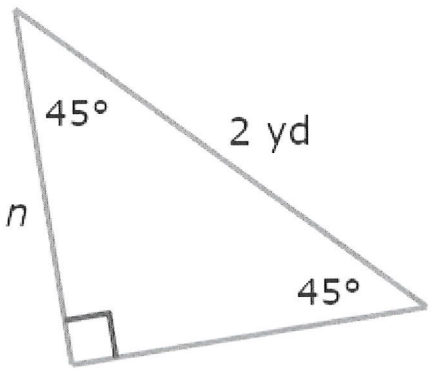


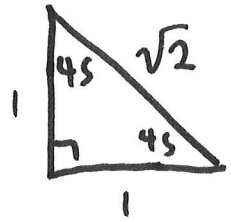
$$\frac{f}{2} = \frac{14}{1}$$

$$f = 2 \cdot 14$$

$$\boxed{f = 28}$$

5. Find n. Write your answer in simplest radical form.





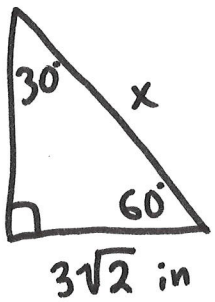
$$\frac{n}{1} = \frac{2}{\sqrt{2}}$$

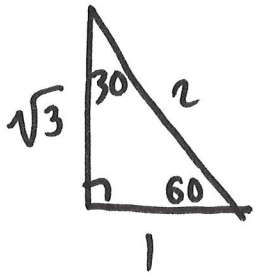
$$\frac{2}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{2}}{(\sqrt{2})^2} = \frac{2\sqrt{2}}{2} = \sqrt{2}$$

$$\frac{n}{1} = \sqrt{2}$$

$n = \sqrt{2}$

6. The shorter leg of a $30^\circ - 60^\circ - 90^\circ$ triangle is $3\sqrt{2}$ inches long. How long is the hypotenuse? Write your answer in simplest radical form.





$$\frac{x}{2} = \frac{3\sqrt{2}}{1}$$

$x = 6\sqrt{2}$