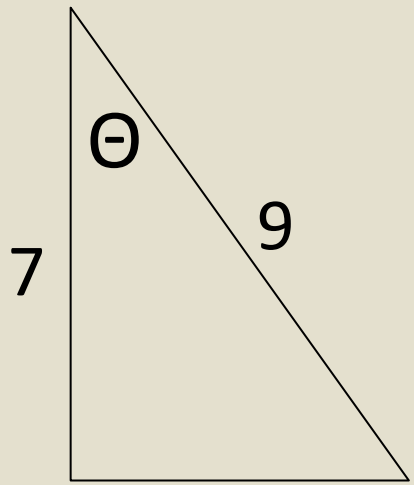
Objective: Use special right triangle ratios to solve problems.

Warmup

Find the length of the missing side, then use the figure to find the exact values of the six trigonometric functions of θ



Objective: Use special right triangle ratios to solve problems.

Warmup

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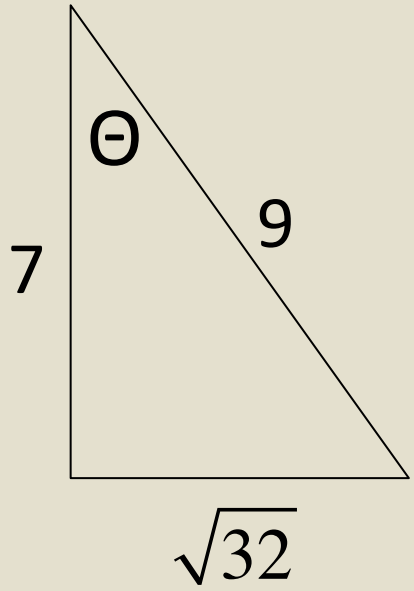


$$\sin\theta = \frac{\sqrt{32}}{9} \qquad \csc\theta = \frac{9\sqrt{32}}{32}$$

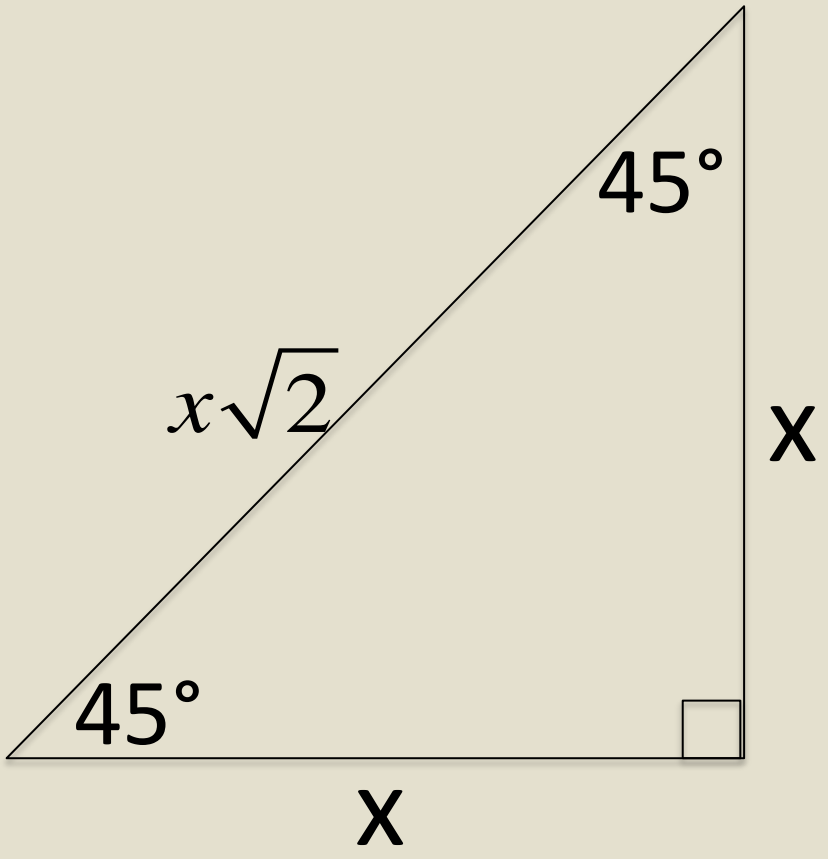
$$\cos\theta = \frac{7}{9} \qquad \sec\theta = \frac{9}{7}$$

$$\tan\theta = \frac{\sqrt{32}}{7} \qquad \cot\theta = \frac{7\sqrt{32}}{32}$$

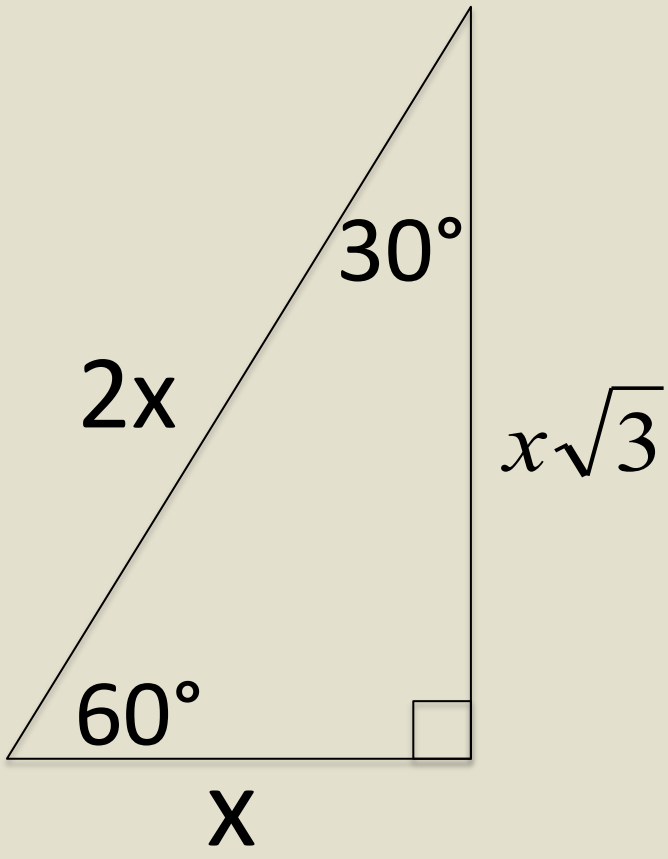
Objective: Use special right triangle ratios to solve problems.

Special Right Triangles

45°–45°–90° triangles



30°–60°–90° triangles

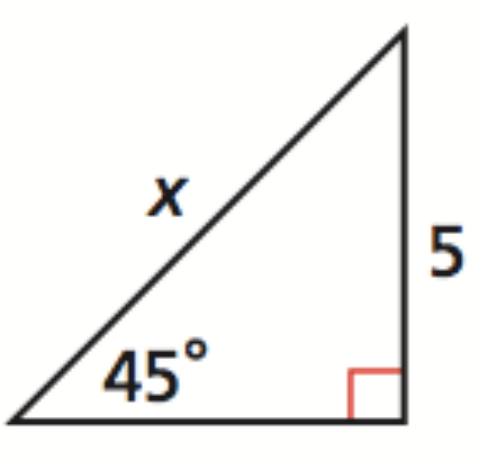


Objective: Use special right triangle ratios to solve problems.

Special right triangles always have the same ratio relative to the shortest side x.

45°–45°–90° triangles

To find the hypotenuse, just multiply by $\sqrt{2}$



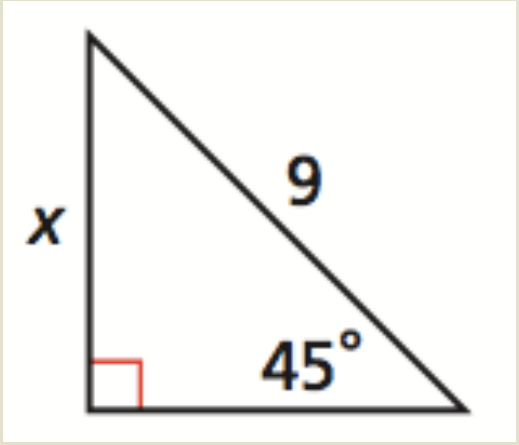
$$x = 5\sqrt{2}$$

Objective: Use special right triangle ratios to solve problems.

Special right triangles always have the same ratio relative to the shortest side x.

45°–45°–90° triangles

To find the leg, just divide by $\sqrt{2}$ then rationalize the denominator if needed.



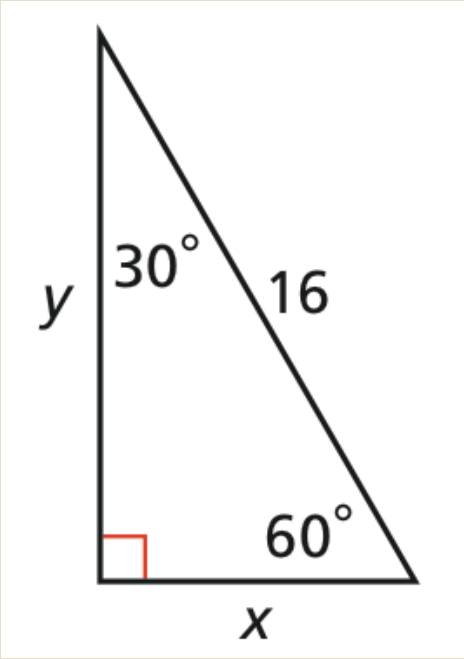
$$x = \frac{9}{\sqrt{2}} \rightarrow \frac{9}{\sqrt{2}}\frac{\sqrt{2}}{\sqrt{2}} \rightarrow \frac{9\sqrt{2}}{2}$$

Objective: Use special right triangle ratios to solve problems.

Special right triangles always have the same ratio relative to the shortest side x.

30°–60°–90° triangles

The hypotenuse is always twice the short leg so $x = 8$



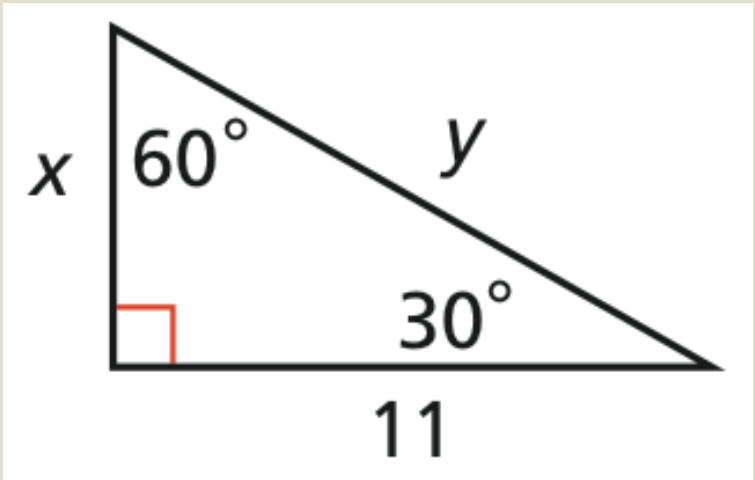
and the longer side is always the short side times $\sqrt{3}$ so $y = 8\sqrt{3}$

Objective: Use special right triangle ratios to solve problems.

Special right triangles always have the same ratio relative to the shortest side x.

30°–60°–90° triangles

When you have the long side, divide by $\sqrt{3}$ to get the short side. They hypotenuse is twice the short side.



$$x = \frac{11}{\sqrt{3}} \rightarrow \frac{11}{\sqrt{3}}\frac{\sqrt{3}}{\sqrt{3}} \rightarrow \frac{11\sqrt{3}}{3}$$

$$y = \frac{22\sqrt{3}}{3}$$

Objective: Use special right triangle ratios to solve problems.

Assignment:

Log in to Office 365/Teams

Complete the assignment:

Special Right Triangles (Week 2, Day 4)

SHOW ALL YOUR WORK!

Due to the frustrations of answers being marked wrong due to formatting etc, I've decided the assignments this week will just be uploaded so I can see all your work. I will also post the answers at the end of the document so you can check, basically more like we used to do in class.

NO WORK = NO CREDIT (now more important than ever)