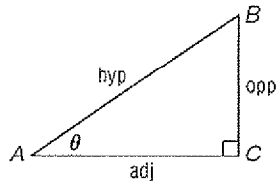


13-1 Study Guide and Intervention

Right Triangle Trigonometry

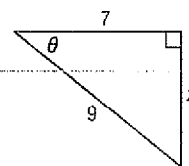
Trigonometric Values

<p>Trigonometric Functions</p> 	<p>If θ is the measure of an acute angle of a right triangle, <i>opp</i> is the measure of the leg opposite θ, <i>adj</i> is the measure of the leg adjacent to θ, and <i>hyp</i> is the measure of the hypotenuse, then the following are true.</p> $\sin \theta = \frac{\text{opp}}{\text{hyp}} \quad \cos \theta = \frac{\text{adj}}{\text{hyp}} \quad \tan \theta = \frac{\text{opp}}{\text{adj}}$ $\csc \theta = \frac{\text{hyp}}{\text{opp}} \quad \sec \theta = \frac{\text{hyp}}{\text{adj}} \quad \cot \theta = \frac{\text{adj}}{\text{opp}}$
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Example Find the values of the six trigonometric functions for angle θ .

Use the Pythagorean Theorem to find x , the measure of the leg opposite θ .

$$\begin{aligned} x^2 + 7^2 &= 9^2 && \text{Pythagorean Theorem} \\ x^2 + 49 &= 81 && \text{Simplify.} \\ x^2 &= 32 && \text{Subtract 49 from each side.} \\ x &= \sqrt{32} \text{ or } 4\sqrt{2} && \text{Take the square root of each side.} \end{aligned}$$



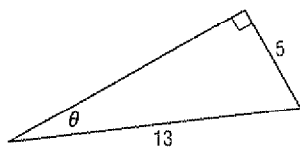
Use $\text{opp} = 4\sqrt{2}$, $\text{adj} = 7$, and $\text{hyp} = 9$ to write each trigonometric ratio.

$$\sin \theta = \frac{4\sqrt{2}}{9} \quad \cos \theta = \frac{7}{9} \quad \tan \theta = \frac{4\sqrt{2}}{7} \quad \csc \theta = \frac{9\sqrt{2}}{8} \quad \sec \theta = \frac{9}{7} \quad \cot \theta = \frac{7\sqrt{2}}{8}$$

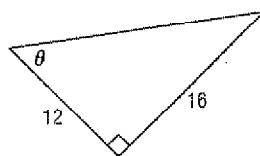
Exercises

Find the values of the six trigonometric functions for angle θ .

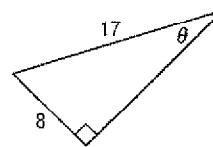
1.



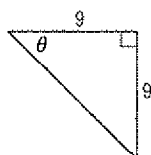
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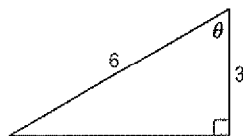
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