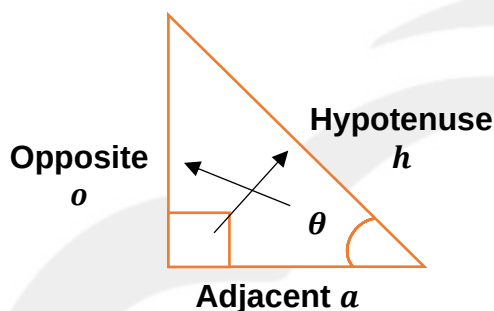




Trigonometry

Trigonometric Ratios

Trigonometry studies the relationship between the sides and angles of triangles. Using the three trigonometric ratios in SOH CAH TOA, you will be able to solve trigonometric problems to find unknown side lengths or angles in right-angled triangles.



SOH $\sin\theta = \frac{\text{Opposite}}{\text{Hypotenuse}}$

CAH $\cos\theta = \frac{\text{Adjacent}}{\text{Hypotenuse}}$

TOA $\tan\theta = \frac{\text{Opposite}}{\text{Adjacent}}$

EXAMPLES:

- 1) Find the missing angle θ if
 $o = 5$ and $h = 7$

STEP ONE: Write what you know:

$$\begin{aligned}\text{Opposite} &= o = 5 \\ \text{Hypotenuse} &= h = 7\end{aligned}$$

STEP TWO: Use the appropriate trigonometric ratio. We will use SOH to find θ . Sub in o and h .

$$\sin\theta = \frac{\text{Opposite}}{\text{Hypotenuse}} = \frac{5}{7}$$

STEP THREE: Transpose.

Take the inverse of sine (arcsin).

Note: Ensure that your calculator is in degree mode.

$$\theta = \sin^{-1}\left(\frac{5}{7}\right) = 45.5847 \approx 45.6^\circ$$

- 2) Find the missing side o if
 $\theta = 40^\circ$ and $a = 3$

STEP ONE: Write what you know:

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Move 3 to the other side to find o .

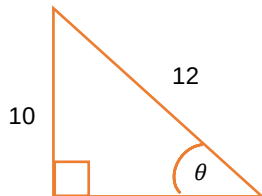
Note: Ensure that your calculator is in degree mode.

$$o = 3 \tan 40^\circ = 2.5173 \approx 2.5$$

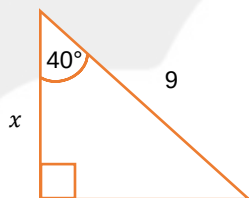


Instructions: Solve the problems below using the trigonometric ratios.
Round your answers to two decimals.

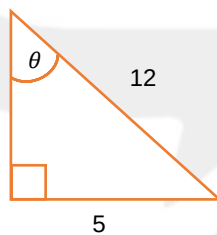
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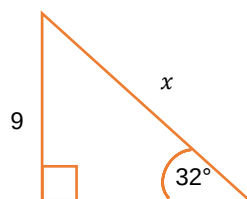
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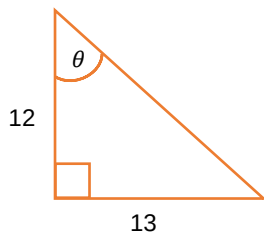


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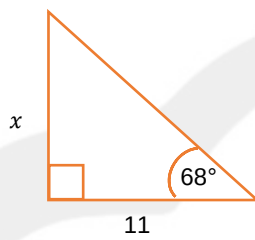




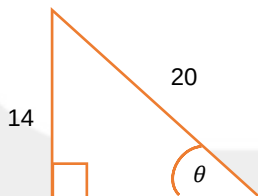
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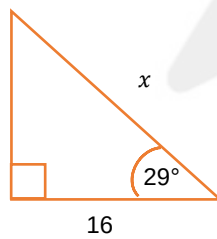
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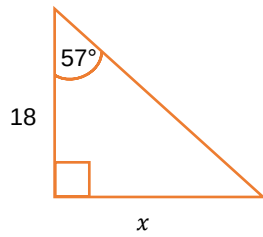


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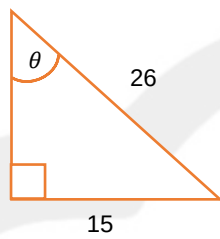




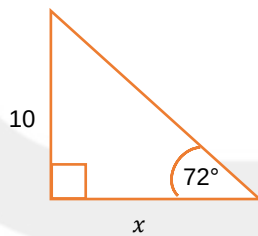
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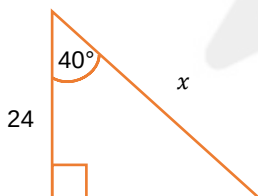
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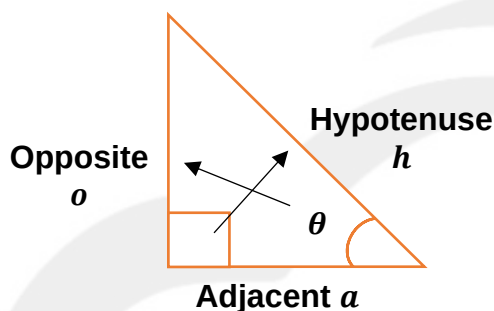




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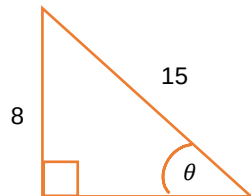
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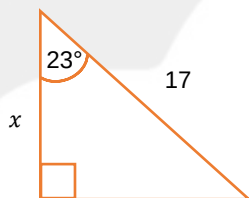


Instructions: Solve the problems below using the trigonometric ratios.
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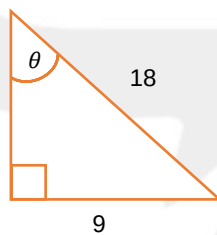
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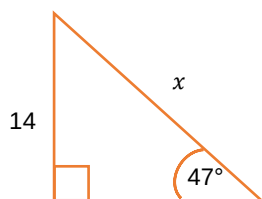
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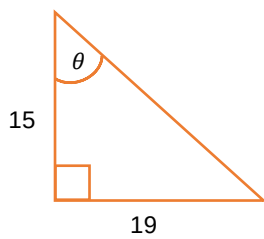


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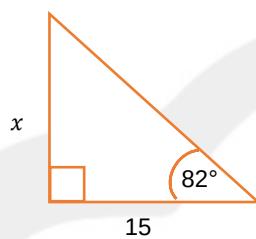




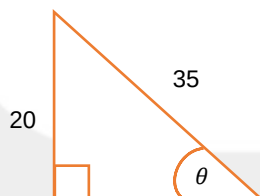
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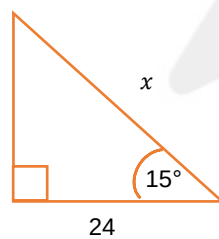
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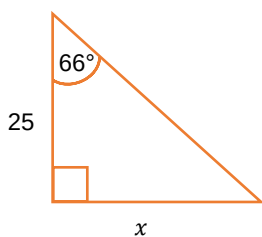


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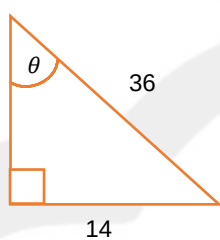




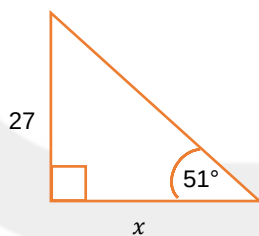
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