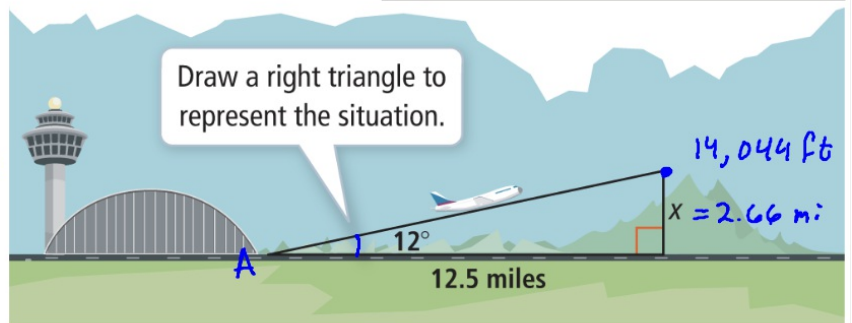


A plane takes off and climbs at a 12° angle. Is that angle sufficient enough to fly over an 11,088-foot mountain that is 12.5 miles from the runway or does the plane need to increase its angle of ascent?



$$\tan A = \frac{\text{opp}}{\text{Adj}}$$

$$12.5 (\tan 12^\circ) = \left(\frac{x}{12.5}\right) 12.5$$

$$12.5 \tan 12^\circ = x$$

$$5280 \text{ ft} = 1 \text{ mi}$$

What are $m\angle A$ and $m\angle B$?

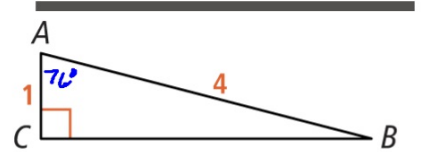
SOLUTION

Inverse sine, cosine, tangent
give us angle measure

\sin^{-1} = Inverse sine

\cos^{-1} = Inverse cosine

\tan^{-1} = Inverse tangent



$$\cos A = \frac{1}{4}$$

$$\cos^{-1}\left(\frac{1}{4}\right) = m\angle A$$

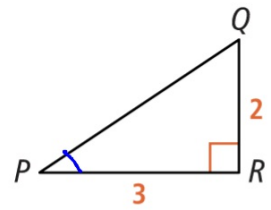
$$m\angle A = 76^\circ$$

$$m\angle B = 14^\circ$$

5. a. What is $m\angle P$?

Enter your answer $\tan P = \frac{2}{3}$

$$\tan^{-1}\left(\frac{2}{3}\right) = m\angle P = 34^\circ$$



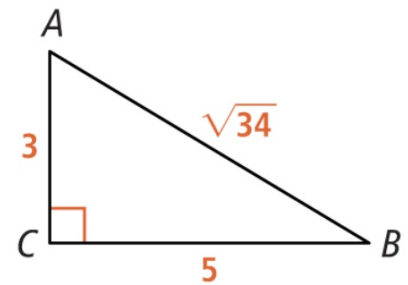
CHECK ANSWER

b. What is $m\angle Q$?

$$\tan^{-1}\left(\frac{3}{2}\right) = m\angle Q = 57^\circ$$

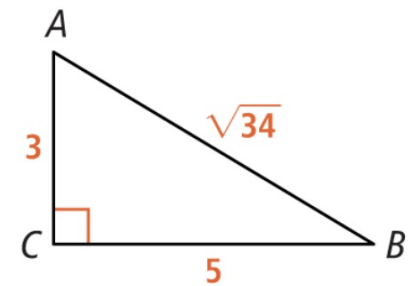
7. Use $\triangle ABC$ to find the trigonometric ratio for $\tan B$.

Enter your answer.



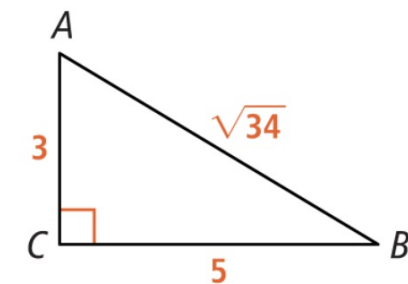
8. Use $\triangle ABC$ to find the trigonometric ratio for $\cos B$.

Enter your answer.



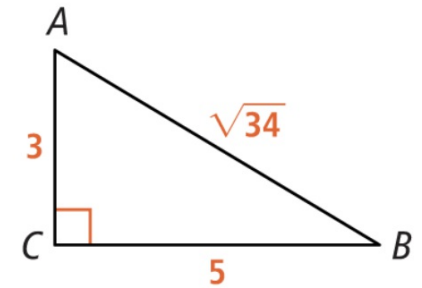
9. Use $\triangle ABC$ to find the trigonometric ratio for $\sin A$.

Enter your answer.



10. Use $\triangle ABC$ to find the trigonometric ratio for $\tan A$.

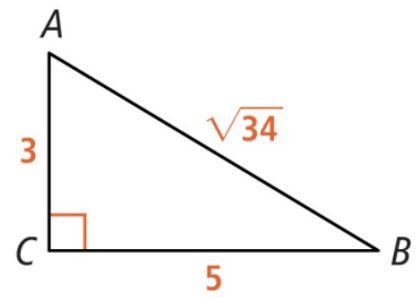
Enter your answer.



Use $\triangle ABC$ to find $m\angle B$.

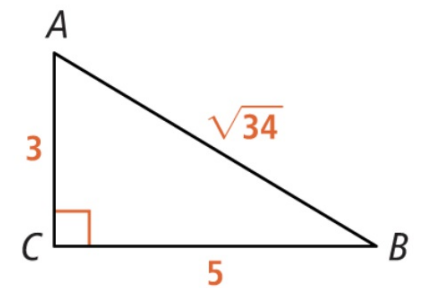
Enter your answer.

$\left. \begin{array}{l} \sin^{-1}\left(\frac{3}{\sqrt{34}}\right) \\ \cos^{-1}\left(\frac{5}{\sqrt{34}}\right) \\ \tan^{-1}\left(\frac{3}{5}\right) \end{array} \right\} 31^\circ$

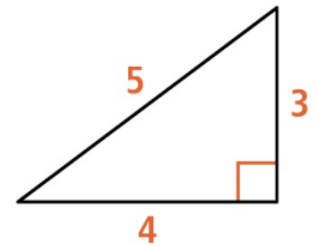


12. Use $\triangle ABC$ to find $m\angle A$.

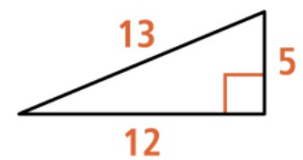
Enter your answer.



13. What are the sine and cosine of the smallest angle in the right triangle shown?



14. What is the measure of the largest acute angle in the right triangle shown?



15. In the figure shown, what are $m\angle S$ and $m\angle T$?

