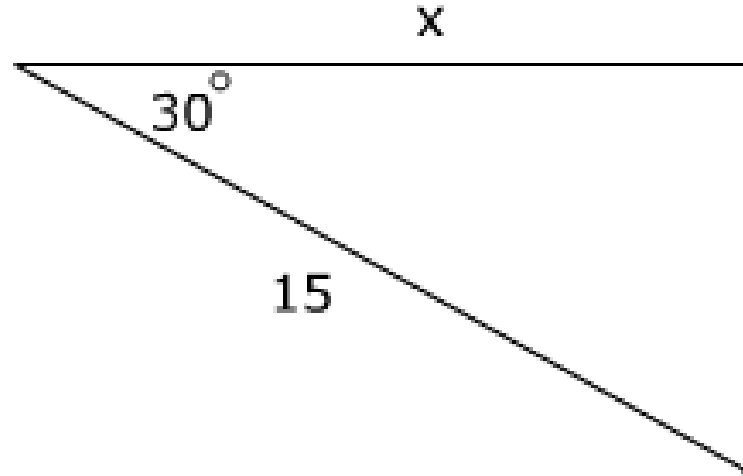


Find the missing side:



The **inverse cosine** (or arccosine) of x is defined as the measure of an acute angle whose cosine is x . If you know the length of any two sides of a right triangle, it is possible to compute the measure of either acute angle by using the inverse cosine, or \cos^{-1} button on a graphing calculator.

In right triangle ABC , if $\cos A = x$, then $\cos^{-1} x = m\angle A$.

- 1. In right triangle ABC , if $\cos A = \frac{2}{7}$, use the inverse cosine determine $m\angle A$.**

2. Alice draws acute angle QRS . She measures RS to be 3 inches and RQ to be 6 inches. She determines the measure of $\angle R$. What is the mistake in Alice's reasoning?

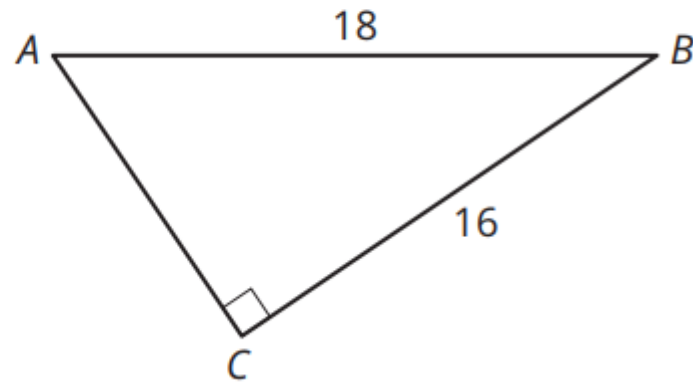
Alice



$$\cos R = \frac{3}{6} = \frac{1}{2}$$

$$m\angle R = \cos^{-1}\left(\frac{1}{2}\right) = 60^\circ$$

3. Use the inverse cosine to calculate $m\angle B$.



4. In $\triangle JKL$, $m\angle J = 90^\circ$, $KL = 8$, and $JL = 5$.
Calculate $m\angle L$.

One cable is 95 feet. The span on the deck of the bridge from that cable to the girder is 80 feet. Calculate the angle formed by the deck and the cable.



6. Firemen are climbing a 65-foot ladder to the top of a 56-foot building. Calculate the distance from the bottom of the ladder to the base of the building and compute the measure of the angle formed where the ladder touches the top of the building.

M2-180

