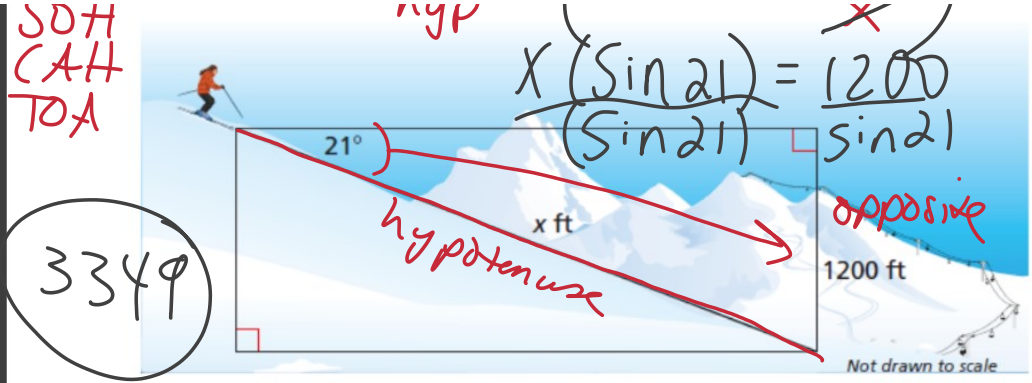
SOH CAH TOA

hyp

$\frac{x(\sin 21)}{(\sin 21)} = \frac{1200}{\sin 21}$



3349

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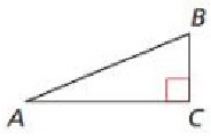
Core Concept

Inverse Trigonometric Ratios

Let $\angle A$ be an acute angle.

TO find angle



Inverse Tangent If $\tan A = x$, then $\tan^{-1} x = m\angle A$. $\tan^{-1}\frac{BC}{AC} = m\angle A$

Inverse Sine If $\sin A = y$, then $\sin^{-1} y = m\angle A$. $\sin^{-1}\frac{BC}{AB} = m\angle A$

Inverse Cosine If $\cos A = z$, then $\cos^{-1} z = m\angle A$. $\cos^{-1}\frac{AC}{AB} = m\angle A$

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Your school is building a *raked stage*. The stage will be 30 feet long from front to back, with a total rise of 2 feet. You want the rake (angle of elevation) to be 5° or less for safety. Is the raked stage within your desired range?

$\sin^{-1} = \frac{2}{30} = 3.8$

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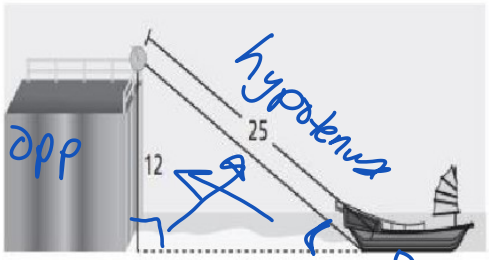
SOH CAH TOA

11. A boat is pulled in by a winch on a dock 12 feet above the deck of the boat. When the winch is fully extended to 25 feet, what is the angle of elevation from the boat to the winch?



$\sin^{-1} = \frac{12}{25}$

28.7°

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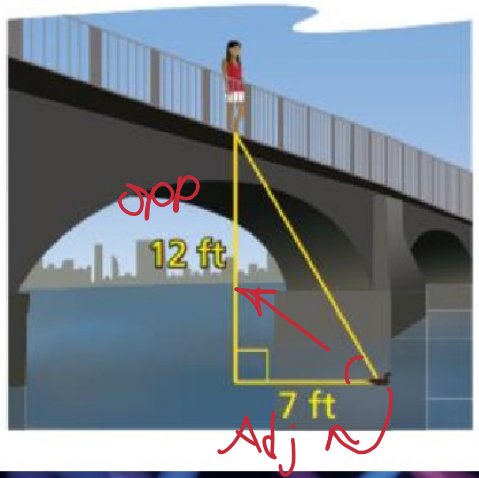
21. **PROBLEM SOLVING** You are standing on a footbridge that is 12 feet above a lake. You look down and see a duck in the water. The duck is 7 feet away from the footbridge. What is the angle of elevation from the duck to you?

SOH CAH TOA



$\tan^{-1} = \frac{12}{7}$

59.7°

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