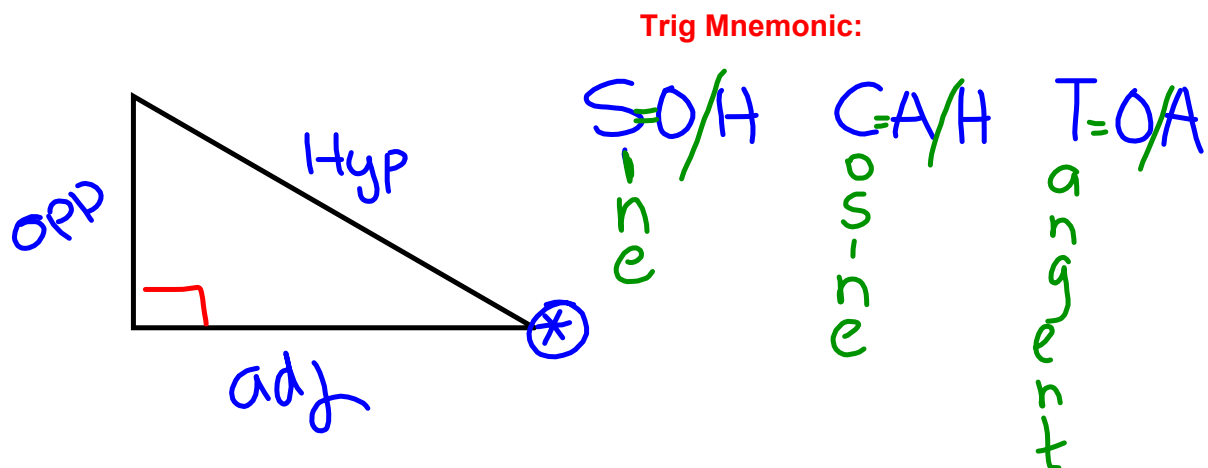


Right Triangle Review Examples

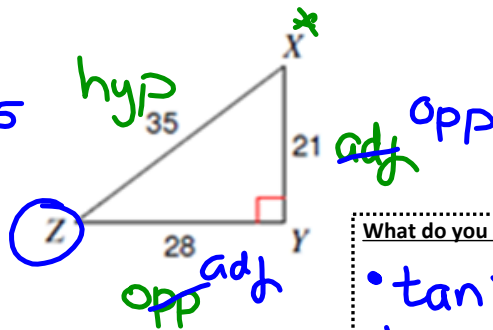
Mnemonic - a device such as a pattern of letters, ideas, or associations that assists in remembering something.



Trigonometric Ratios

Find the value of each trigonometric ratio using the figure to the right.

$$\begin{aligned} \sin X &= \frac{28}{35} = \frac{4}{5} & \sin Z &= \frac{21}{35} = \frac{3}{5} \\ \cos X &= \frac{21}{35} = \frac{3}{5} & \cos Z &= \frac{28}{35} = \frac{4}{5} \\ \tan X &= \frac{28}{21} = \frac{4}{3} & \tan Z &= \frac{21}{28} = \frac{3}{4} \end{aligned}$$



$$\begin{aligned} \sin A &= \frac{16}{34} = \frac{8}{17} & \sin C &= \frac{15}{17} \\ \cos A &= \frac{30}{34} = \frac{15}{17} & \cos C &= \frac{8}{17} \\ \tan A &= \frac{16}{30} = \frac{8}{15} & \tan C &= \frac{15}{8} \end{aligned}$$

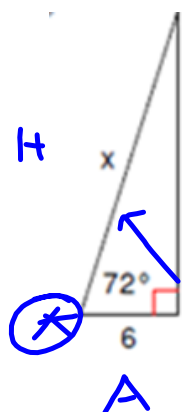


What do you notice . . . ?

- $\tan X$ is the reciprocal of $\tan Z$
- $\sin X = \cos Z$
- $\cos X = \sin Z$

Solving Right Triangles

Find the missing side. Round your answer to the nearest thousandth.



x.xxx

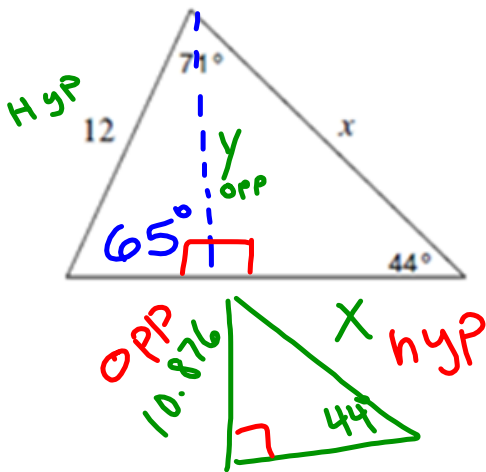
$$\cos 72^\circ = \frac{6}{x}$$

$$x \cdot \cos 72^\circ = 6$$

$$x = \frac{6}{\cos 72^\circ} = 19.416$$

Multi-Step Trigonometry Problems

Find the length of the side labeled x . Round intermediate and final answers to the nearest thousandth.



$$\frac{\sin 65^\circ}{1} = \frac{y}{12}$$

$$y = 12 \cdot \sin 65$$

$$y = 10.876$$

$$\frac{\sin 44^\circ}{1} = \frac{10.876}{x}$$

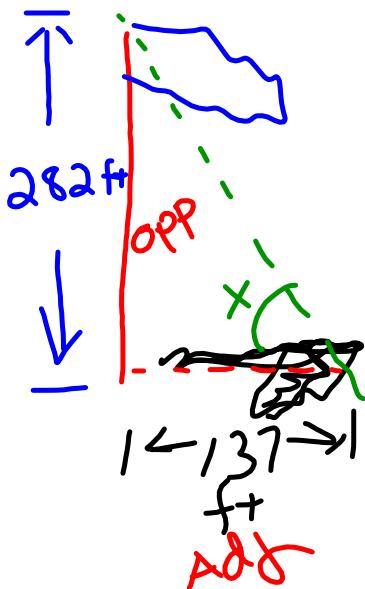
$$x = \frac{10.876}{\sin 44}$$

$$x = 15.657$$

The world's tallest unsupported flag is on a 282 foot steel pole located in Surrey, British Columbia.

The shortest shadow cast by the pole during the year is 137 feet in length.

What is the angle of elevation of the sun, when this shadow is cast? Round your answer to the nearest hundredth.



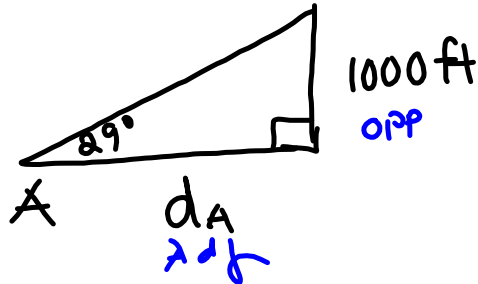
$$\tan x = \frac{O}{A} = \frac{282}{137} \quad \cdot x x$$

$$x = \tan^{-1} \left(\frac{282}{137} \right)$$

$$x = 64.09^\circ$$

From a lighthouse 1000 feet above sea level, the angle of depression to a boat at point A is 29°. A little bit later, when the boat is closer to shore at point B, the angle of depression is 44°. How far has the boat moved? Round your answer to the nearest thousandth.

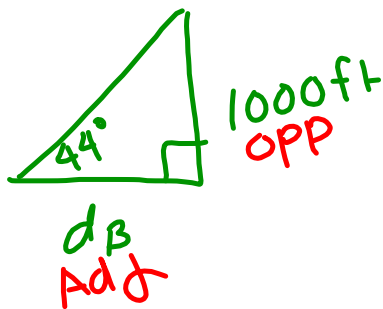
Scenario 1



$$\tan 29^\circ = \frac{1000}{d_A}$$

$$d_A = \frac{1000}{\tan 29^\circ} = 1804.048$$

Scenario 2



$$\tan 44^\circ = \frac{1000}{d_B}$$

$$d_B = \frac{1000}{\tan 44^\circ} = 1035.536$$

$$X = 1804.048 - 1035.536$$

$$X = 768.518 \text{ ft}$$

