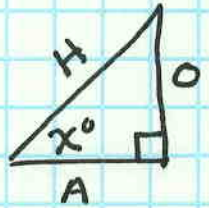


# 12.1 Trigonometry SOH CAHTOA

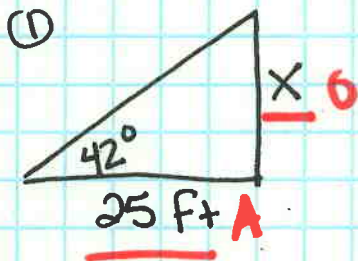
$$\sin x = \frac{O}{H}$$

$$\cos x = \frac{A}{H}$$

$$\tan x = \frac{O}{A}$$



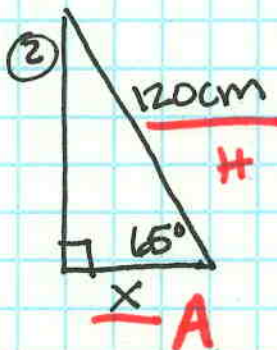
WARM-UP nearest tenth



$$\tan 42 = \frac{x}{25}$$

$$25 \tan 42 = x$$

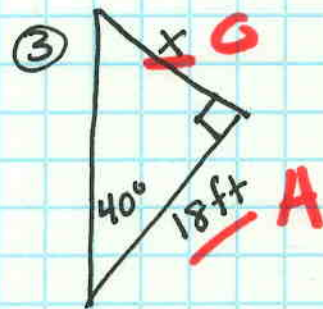
$$\boxed{22.5 \text{ ft}}$$



$$(120) \cos 65 = \frac{x}{120}$$

$$120 \cos 65 = x$$

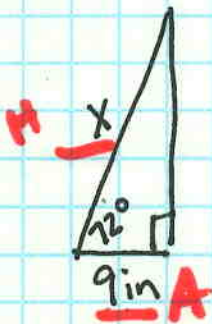
$$\boxed{50.7 \text{ cm}}$$



$$\tan 40 = \frac{x}{18}$$

$$18 \tan 40 = x$$

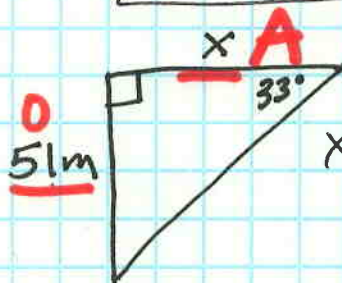
$$\boxed{15.1 \text{ ft}}$$



$$\frac{x \cos 72 = 9}{\cos 72} = \frac{9 \cdot x}{x \cos 72}$$

$$x = \frac{9}{\cos 72}$$

$$\boxed{x = 29.1 \text{ in}}$$



$$\frac{x \tan 33 = 51}{\tan 33} = \frac{51 \cdot x}{x \tan 33}$$

$$x = \frac{51}{\tan 33}$$

$$\boxed{x = 78.5 \text{ m}}$$

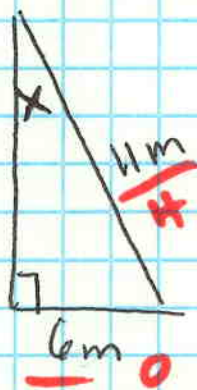
Solve for the angle using SOHCAHTOA

to solve for an angle, use

Inverse Trig Functions §

"gets out" the angle

$$\sin^{-1}\left(\frac{O}{H}\right) = x^\circ \quad \cos^{-1}\left(\frac{A}{H}\right) = x^\circ \quad \tan^{-1}\left(\frac{O}{A}\right) = x^\circ$$



$$\sin x = \frac{6}{11}$$

$$x = 33.1^\circ$$