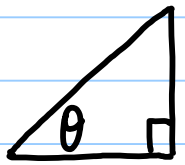
9/13 THU

4.3 (part 2) Right Δ's continued..... SOH CAH TOA

opp / hyp

$\sin\theta = 0.2947$. Find θ.

angle (radian)



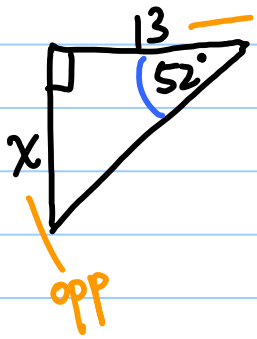
$\theta = \sin^{-1}(0.2947)$ "arcsin of .2947" "inverse sin of .2947"

not $\frac{1}{\sin\ldots}$

shift $\sin^{-1}$ $\sin$ .2947 → .2991415

.2991 radians $\cdot\frac{180}{\pi} = 17.1°$

ex 1)



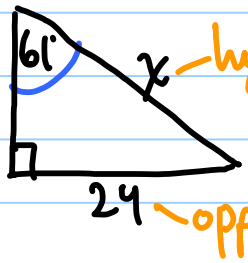
Find x.

$\tan 52° = \frac{x}{13}$

$13 \cdot \tan 52° = x$

$16.63 \approx x$

ex 2)



Find x.

$\sin 61° = \frac{24}{x}$ switcharoo $x = \frac{24}{\sin 61°}$

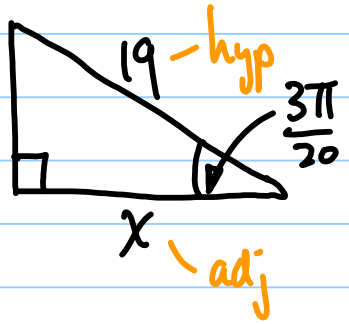
$x = 27.45$

$\frac{3}{6} = \frac{7}{14}$

$\frac{14}{6} \stackrel{?}{=} \frac{7}{3}$

2.3 2.3

ex 3)

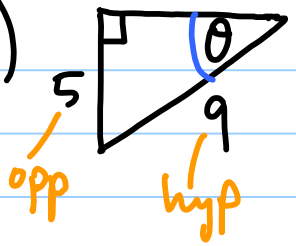


$\cos\frac{3\pi}{20} = \frac{x}{19}$

$19\cos\frac{3\pi}{20} = x$

$16.93 = x$

ex 4)

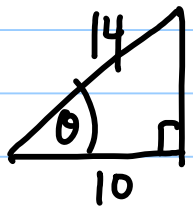


$\sin\theta = \frac{5}{9}$

$\theta = \sin^{-1}\left(\frac{5}{9}\right) = 0.5890$ radians

$\rightarrow \cdot \frac{180}{\pi} = 33.7°$

ex 5)

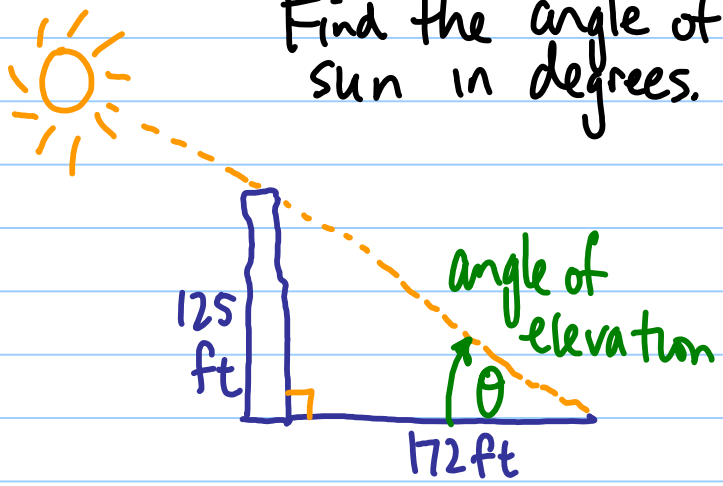


$\cos\theta = \frac{10}{14}$

$\theta = \cos^{-1}\left(\frac{10}{14}\right) = .7752$ radians

$\rightarrow \cdot \frac{180}{\pi} = 44.4°$

ex last) A tower is 125 feet tall. It's shadow is 172 ft long. Find the angle of elevation of the sun in degrees.



$\tan\theta = \frac{125}{172}$

$\theta = \tan^{-1}\left(\frac{125}{172}\right)$

$\approx 36.0°$

HW: p499, # 30-42 even & 53, 54, 56, 57, ~~265-1079~~