P427

25. $\sin^{-1}\left(\cos\left(\frac{\pi}{4}\right)\right)$

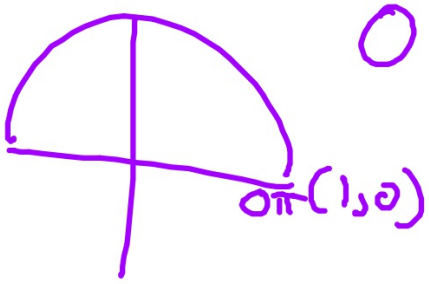
$\sin^{-1}\left(\frac{\sqrt{2}}{2}\right)$

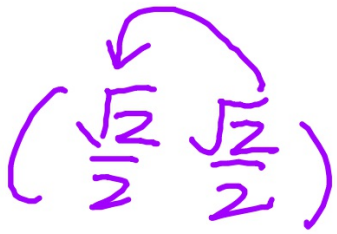
$\frac{\pi}{4}$

30. $\arccos\left(\tan\frac{\pi}{4}\right)$

$\arccos 1$

0





32. $\tan^{-1}(\cos \pi)$

$\tan^{-1}(-1)$

$\frac{-\pi}{4}$

$\cos^{-1}(\pi)$

p381 20. $\tan\left(\frac{4\pi}{5}\right)$

$\cos\frac{23\pi}{6}$

$-\frac{12\pi}{6}$

$\cos\frac{11\pi}{6}$

$\frac{\sqrt{3}}{2}$

$\cos\frac{17\pi}{4}$

$-\frac{8\pi}{4}$

$\cos\frac{9\pi}{4}$

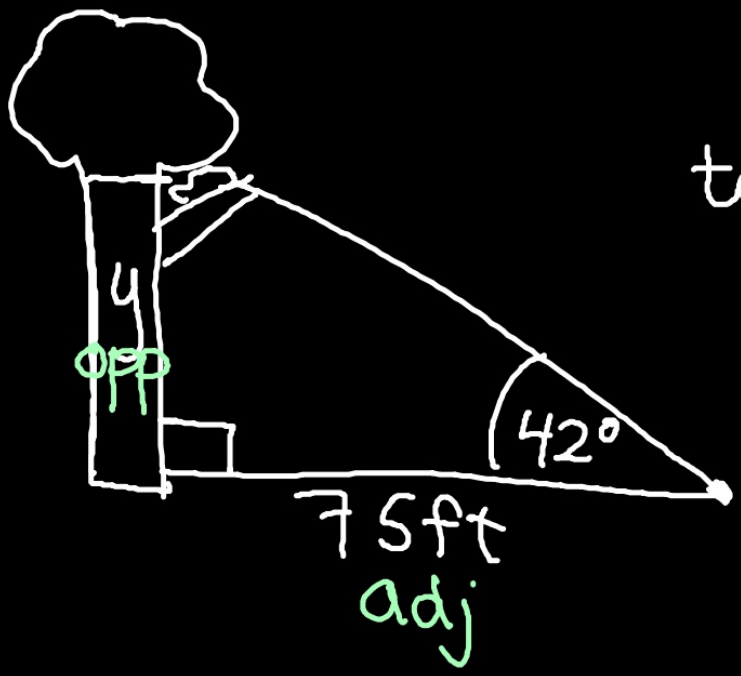
$-\frac{8\pi}{4}$

$\cos\frac{\pi}{4}$

$\frac{\sqrt{2}}{2}$

4.8 Rt Δ Trig Apps

From a point 75 feet from a tree, Sam spots a bird's nest. She knows that the angle of elevation to the nest is forty-two degrees. Calculate the distance from the base of the tree to the nest. Round to the nearest foot.



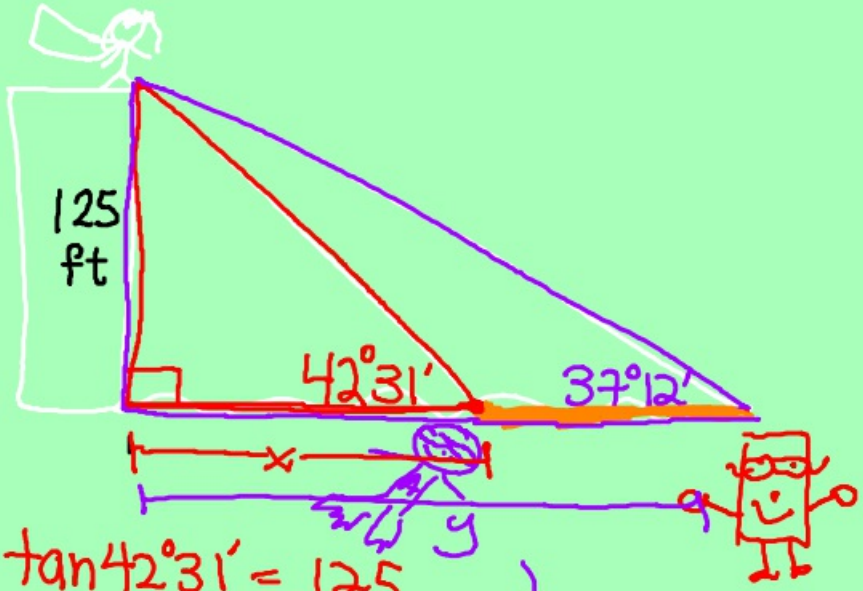
SOH CAH TOA

$\tan 42° = \frac{y}{75}$

$75 \tan 42° = y$

$y = 68\text{ ft}$

Ex: From the top of a 125 foot tall building, Jillian spots her two friends, AquaMegan and SpongeJoe. The angle of depression, respectively, to her soggy friends are $42^\circ 31'$ and $37^\circ 12'$ Find the distance to the tenths place between her friends.



$\frac{\tan 42^\circ 31'}{1} = \frac{125}{x}$

$x \tan 42^\circ 31' = 125$

$x = \frac{125}{\tan 42^\circ 31'}$

$x = 136.3 \text{ ft}$

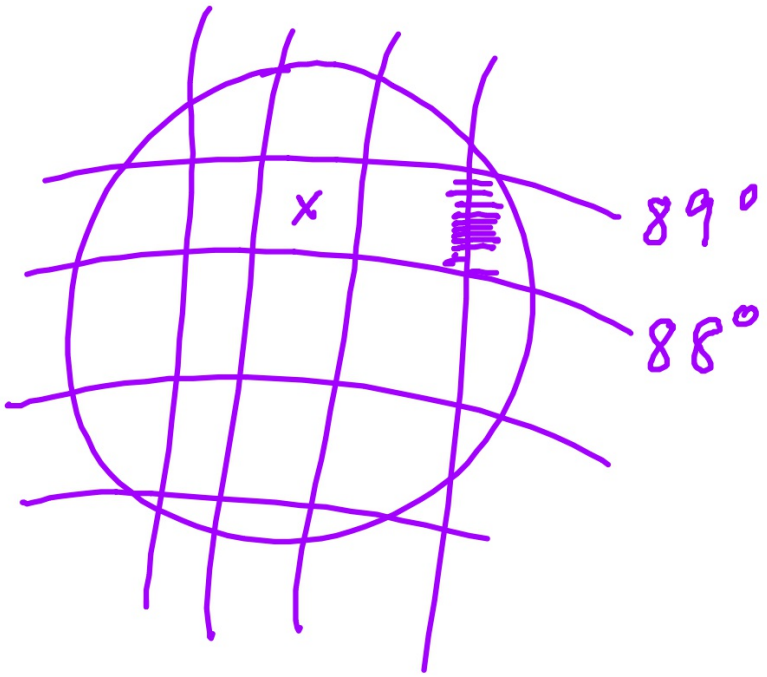
$\tan 37^\circ 12' = \frac{125}{y}$

$y = \frac{125}{\tan 37^\circ 12'}$

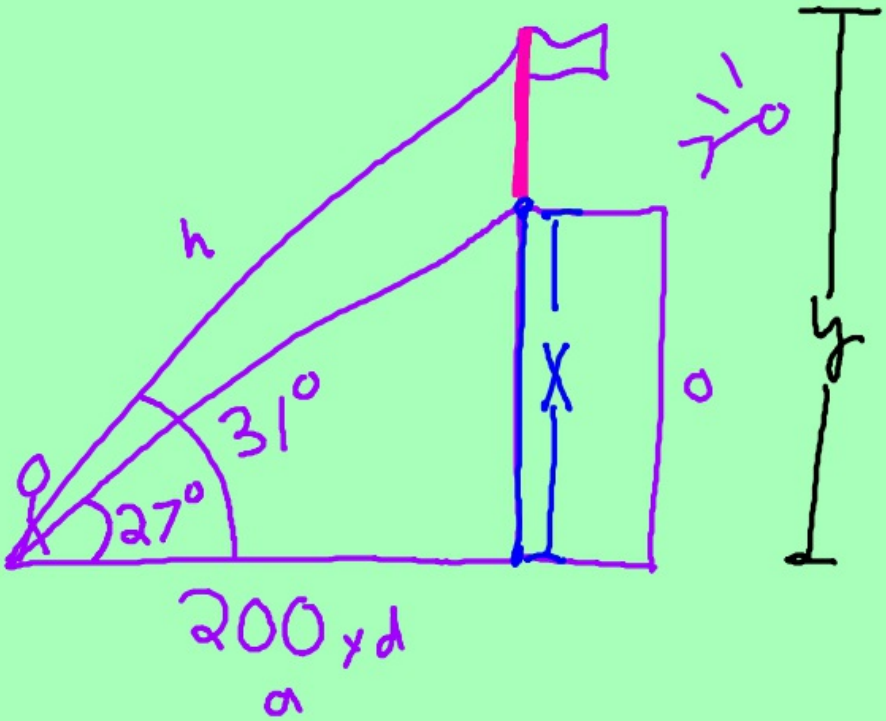
$y = 164.7 \text{ ft}$

$164.7 - 136.3$

28.4 ft


x
89°
88°

Ex. From a point 200yds from a building, Brendan spots a flag pole sitting on top of the building. The angle of elevation from the ground to the base of the flag pole is 27 degrees and the angleof elevation to the top of the flag pole is 31 degrees. Determine the height of the flag pole. Round to the ten-thousandths place.



$\tan 27° = \frac{x}{200}$ $\tan 31° = \frac{y}{200}$

Ans 18.2670yds

Law of Sines & Cosines

5.8-5.9

* oblique Δs
  - ↳ non-rt Δs

lowercase
sides

uppercase
angles

Law of sines

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

used for side-angle combos