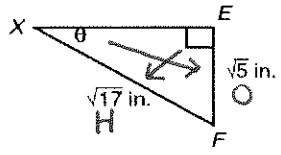
$\sin\theta = \frac{O}{H}$ $\cos\theta = \frac{A}{H}$ $\tan\theta = \frac{O}{A}$

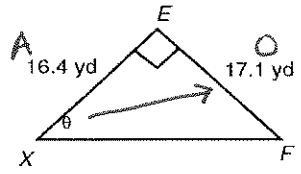
STATION 1 - Find the missing Angle



$\sin^{-1}\left(\frac{\sqrt{5}}{\sqrt{17}}\right)$

$\theta = 32.842°$

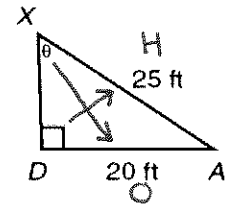
STATION 2 - Find the missing Angle



$\tan^{-1}\left(\frac{17.1}{16.4}\right)$

$\theta = 46.197°$

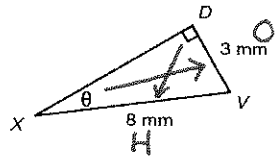
STATION 3 - Find the missing Angle



$\sin^{-1}\left(\frac{20}{25}\right)$

$\theta = 53.130°$

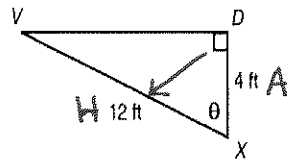
STATION 4 - Find the missing Angle



$\sin^{-1}\left(\frac{3}{8}\right)$

$\theta = 22.024°$

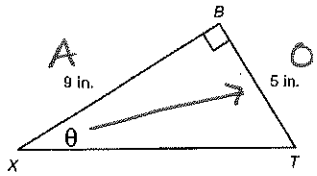
STATION 5 - Find the missing Angle



$\cos^{-1}\left(\frac{4}{12}\right)$

$\theta = 70.529°$

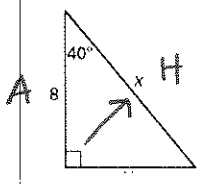
STATION 6 - Find the missing Angle



$\tan^{-1}\left(\frac{5}{9}\right)$

$\theta = 29.055°$

STATION 7 - Find the missing Side

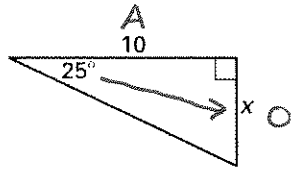


$\cos 40 = \frac{8}{x}$

$x = \frac{8}{\cos 40}$

$x = 10.443$

STATION 8 - Find the missing Side

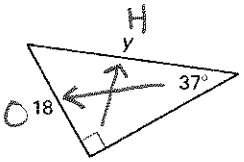


$\tan 25 = \frac{x}{10}$

$x = 10\tan 25$

$x = 4.663$

STATION 9 - Find the missing Side

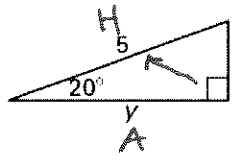


$\sin 37 = \frac{18}{y}$

$y = \frac{18}{\sin 37}$

$y = 29.910$ ← rounded from 29.9095

STATION 10 - Find the missing Side

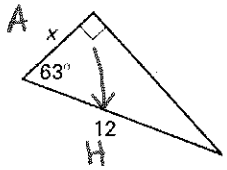


$\cos 20 = \frac{y}{5}$

$y = 5\cos 20$

$y = 4.698$

STATION 11 - Find the missing Side

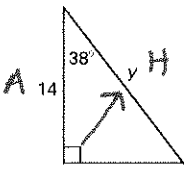


$\cos 63 = \frac{x}{12}$

$x = 12\cos 63$

$x = 5.448$

STATION 12 - Find the missing Side



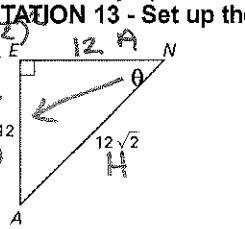
$\cos 38 = \frac{14}{y}$

$y = \frac{14}{\cos 38}$

$y = 17.760$

could also use 45-45-90 Δ rules

STATION 13 - Set up the 3 trig ratios for the following:



$\sin\theta = \frac{O}{H} = \frac{12}{12\sqrt{2}} = \frac{\sqrt{2}}{2}$

$\cos\theta = \frac{A}{H} = \frac{12}{12\sqrt{2}} = \frac{\sqrt{2}}{2}$

$\tan\theta = \frac{O}{A} = \frac{12}{12} = 1$

$12^2 + x^2 = (12\sqrt{2})^2$

$144 + x^2 = 288$

$-144 \quad -144$

$x^2 = 144$

$x = \sqrt{144}$

$x = 12$

STATION 14 - Set up the 3 trig ratios for the following:

$\sin\theta = \frac{O}{H} = \frac{24}{25}$

$\cos\theta = \frac{A}{H} = \frac{7}{25}$

$\tan\theta = \frac{O}{A} = \frac{24}{7}$

$7^2 + 24^2 = x^2$

$49 + 576 = x^2$

$625 = x^2$

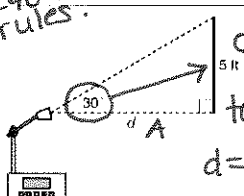
$x = \sqrt{625}$

$x = 25$

STATION 15 → could also use 30-60-90 Δ rules.

Mr. Montoya positioned an overhead projector in his classroom, as shown below.

What is the distance, d, the projector must be from the screen for a projected image to fill the screen exactly, top to bottom?



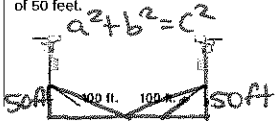
$\tan 30 = \frac{5}{d}$

$d = \frac{5}{\tan 30}$

$d = 5\sqrt{3}$ ft

STATION 16 must use the pythagorean Th.

Two telephone poles are supported by 100-foot cables as shown below. The cables are attached at a height of 50 feet.



$a^2 + b^2 = c^2$

$50^2 + x^2 = 100^2$

$2500 + x^2 = 10000$

$-2500 \quad -2500$

$x^2 = 7500$

$x = 86.603$

2 Δ's so need to double it.

$86.603(2)$

173.206 ft