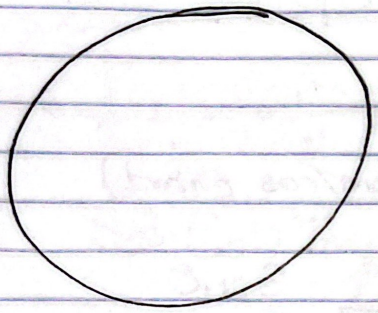
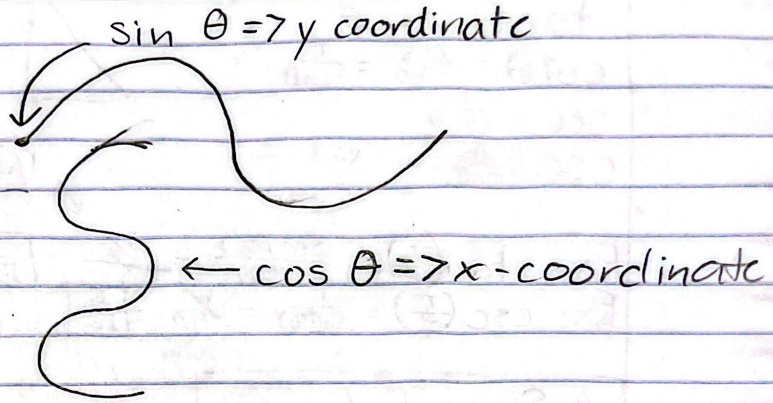
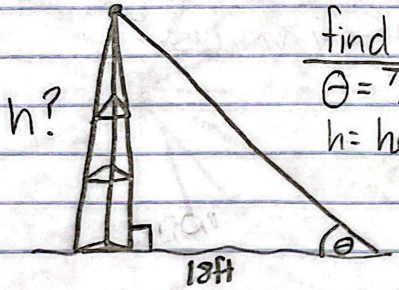




Trig. Word Problems:

Ex:



find height?

$\theta = \pi/3$

h = height of tower

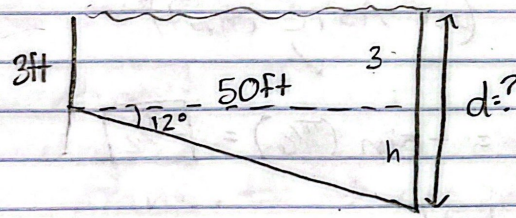
$\tan\theta = \frac{opp}{adj}$

$= \tan\theta = \frac{h}{18}$ ft

$= 18 \cdot \tan(\pi/3) = h$ or $18 \cdot \sqrt{3} = h$

$= \boxed{h = 18\sqrt{3}\text{ ft}}$

Ex:



find depth?

$d = 3 + h$

$\tan(12°) = \frac{h}{50}$

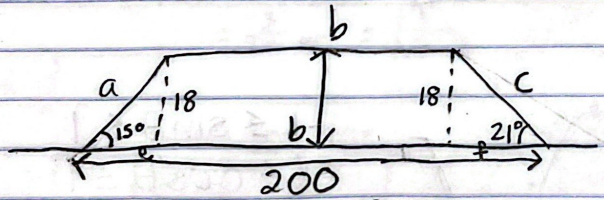
$= 50\tan(12°) = h$

$= 10.627 = h$

$= d = 10.627 + 3$

$\boxed{d = 13.627}$

Ex:



$a + b + c = \boxed{205.7}$

$a = \sin(15°) = \frac{18}{a}$

$a = \frac{18}{\sin(15°)}$

$a = 69.55$

$c = \sin(21°) = \frac{18}{c}$

$c = \frac{18}{\sin(21)}$

$c = 50.22$

$b = 200 - e - f$

$200 - 114.06$

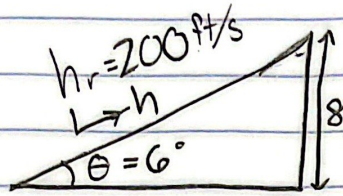
$b = 85.94$

$e = \frac{18}{\tan(15)} = 67.17$

$f = \frac{18}{\tan(21)} = 46.89$

(5.)

Ex:



work:

$\sin\theta = \frac{8000}{h}$

$h\sin\theta = 8000$

$h = \frac{8000}{\sin(6°)}$

$h = 76{,}534$ ft

$d = r \cdot t$ → $76534 = 200 \cdot t$

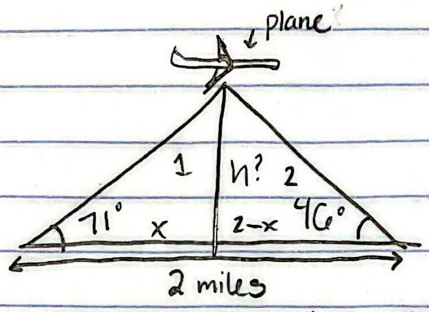
$= \frac{76534}{200} = t = 382.67$ in sec

$\frac{382.67}{60} = t$ in min

$= \boxed{6.377 \text{ min}}$

(13.)

Ex:



tri 1: $\tan(71) = \frac{h}{x}$

$x = \frac{h}{\tan(71)}$

main equation

$\frac{h}{\tan(71)} = \frac{2\tan(46) - h}{\tan(46)}$

tri 2: $\tan(46) = \frac{h}{2-x}$

$(2-x)\tan(46) = h$

$= 2\tan(46) - x\tan(46) = h$

$+x\tan(46) \quad -h$

$= x\tan(46) = 2\tan(46) - h$

$x = \frac{2\tan(46) - h}{\tan(46)}$

$h\tan(46) = \tan(71)[2\tan(46) - h]$

$= h\tan(46) = 2\tan(71)\tan(46) - h\tan(71)$

$= h\tan(46) + h\tan(71) = 2\tan(71)\tan(46)$

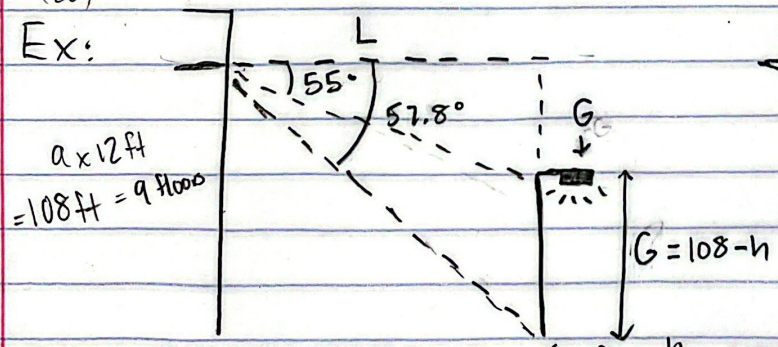
$= h[\tan(46) + \tan(71)] = 2\tan(71)\tan(46)$

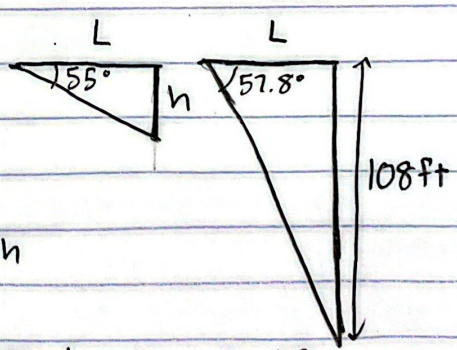
$= h = \frac{2\tan(71)\tan(46)}{\tan(46) + \tan(71)}$

$= h = \boxed{1.5266 \text{ miles}}$

(20)

Ex:





$\tan(55) = \frac{h}{L}$ ← $\tan(57.8) = \frac{108}{L}$

$= 68.011\tan(55) = h$

$h = 97.13$

$L = \frac{108}{\tan(57.8)} = 68.011$

$G = 108 - h$

$\boxed{G = 10.869 \text{ ft}}$