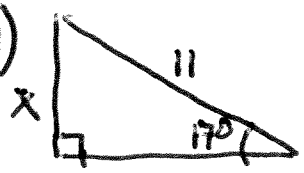
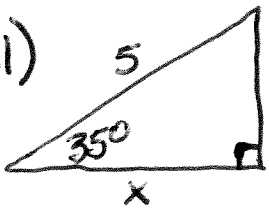
4-1B p. 227; *19-45 odd

19) 

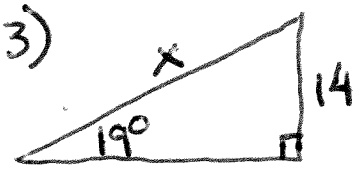
$\sin 17^\circ = \frac{x}{11}$

$11 \sin 17^\circ = x = 3.2$

21) 

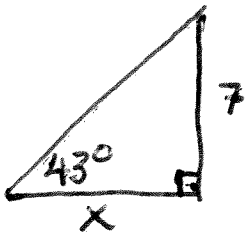
$\cos 35^\circ = \frac{x}{5}$

$5 \cos 35^\circ = x = 4.1$

23) 

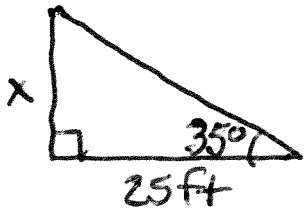
$\sin 19^\circ = \frac{14}{x}$

$x = \frac{14}{\sin 19^\circ} = 43.0$

25) 

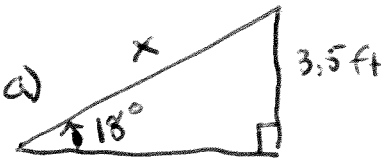
$\tan 43^\circ = \frac{7}{x}$

$x = \frac{7}{\tan 43^\circ} = 7.5$

27) 

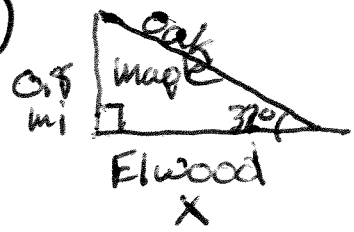
$\tan 35^\circ = \frac{x}{25}$

$25 \tan 35^\circ = x = 17.5 \text{ ft}$

28) 

a) $\sin 18^\circ = \frac{3.5}{x}$

$x = \frac{3.5}{\sin 18^\circ} = 11.3 \text{ ft}$

29) 

b) $\tan 32^\circ = \frac{0.8}{x}$

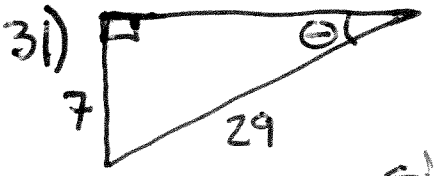
$x = \frac{0.8}{\tan 32^\circ} = 1.28 \text{ mi}$

30) 

$\tan 8^\circ = \frac{x}{1350}$

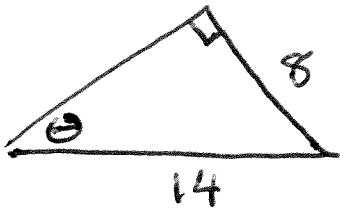
$1350 \tan 8^\circ = x$

$189.70 = x$

31) 

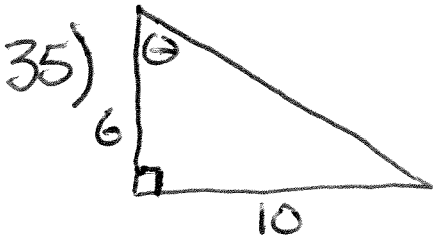
$\sin \theta = \frac{7}{29}$

$\sin^{-1}\left(\frac{7}{29}\right) = \theta = 14^\circ$

33) 

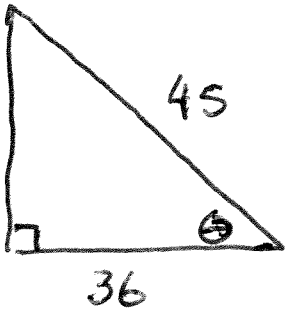
$\sin\theta = \frac{8}{14}$

$\sin^{-1}\left(\frac{8}{14}\right) = \theta = 35°$

35) 

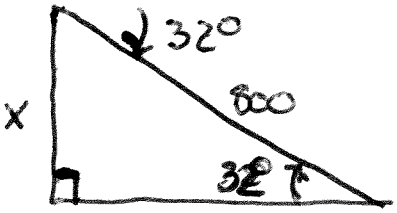
$\tan\theta = \frac{10}{6}$

$\tan^{-1}\left(\frac{10}{6}\right) = \theta = 59°$

37) 

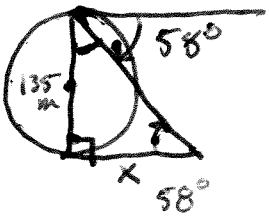
$\cos\theta = \frac{36}{45}$

$\cos^{-1}\left(\frac{36}{45}\right) = 36.9°$

39) 

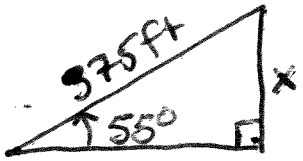
$\sin 32° = \frac{x}{800}$

$800\sin 32° = x = 423.9\text{ ft}$

40) 

$\tan 58° = \frac{135}{x}$

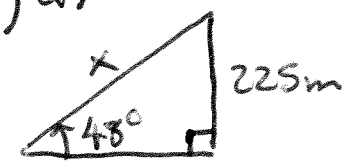
$x = \frac{135}{\tan 58°} = 84.36\text{m}$

41) 

$\sin 55° = \frac{x}{375}$

$375\sin 55° = x = 307.2\text{ ft}$

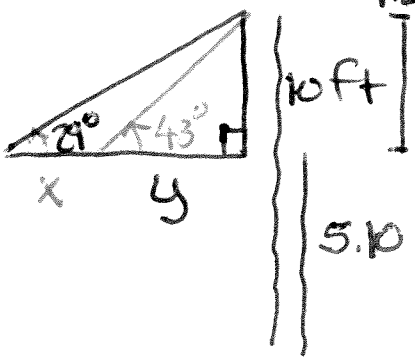
42) a)



b) $\sin 48° = \frac{225}{x}$

$x = \frac{225}{\sin 48°} = 302.8\text{m}$

43)



$4.2" = 4.17$

$\tan 29° = \frac{4.17}{x+y}$

$x+y = \frac{4.17}{\tan 29°}$

$x+y = 7.5\text{ft}$

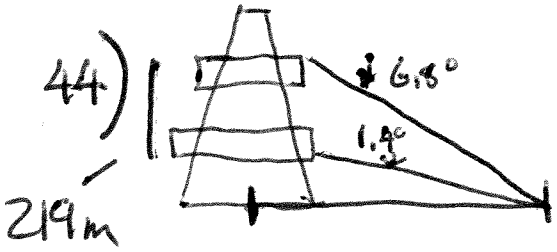
$\tan 43° = \frac{4.17}{y}$

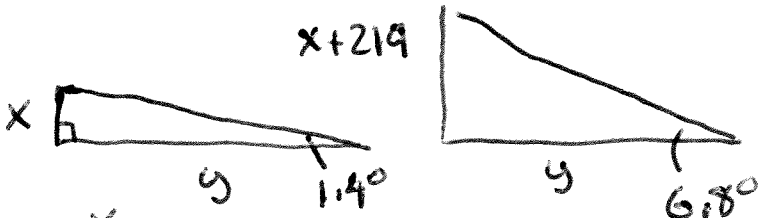
$y = \frac{4.17}{\tan 43°}$

$y = 4.5\text{ft}$

$7.5\text{ft} - 4.5 = y \approx 3\text{ft}$

44)





$\tan 1.4° = \frac{x}{y}$

$y = \frac{x}{\tan 1.4°}$

$\tan 6.8° = \frac{x+219}{y}$

$y = \frac{x+219}{\tan 6.8°}$

$\frac{x}{\tan 1.4°} = \frac{x+219}{\tan 6.8°}$

$\tan 1.4 = \frac{x}{y}$

$y = \frac{x}{\tan 1.4°} = \frac{56.456}{\tan 1.4°}$

$y = \underline{2310\text{m}}$

$(x+219)\tan 1.4° = x \tan 6.8°$

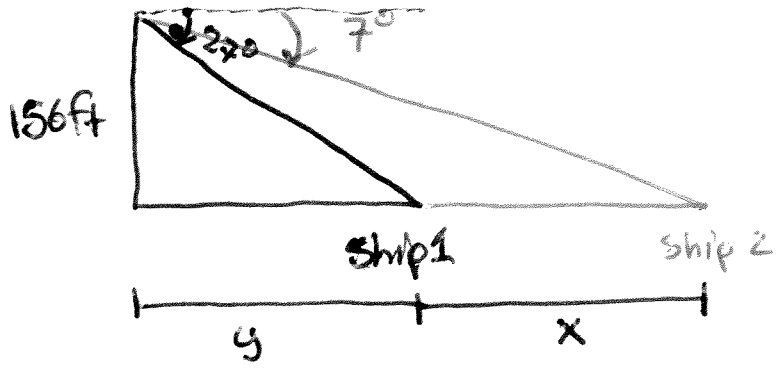
$x \tan 1.4° + 219 \tan 1.4° = x \tan 6.8°$

$219 \tan 1.4° = x \tan 6.8° - x \tan 1.4°$

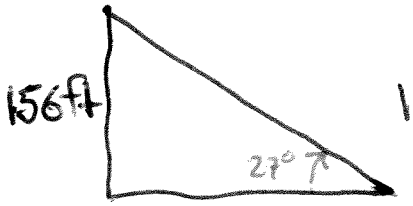
$219 \tan 1.4° = x(\tan 6.8° - \tan 1.4°)$

$\frac{219 \tan 1.4°}{\tan 6.8° - \tan 1.4°} = x = 56.456$

45)



Find x



$$\tan 27^\circ = \frac{156}{y} \qquad \tan 7^\circ = \frac{156}{y+x}$$

$$y = \frac{156}{\tan 27^\circ} \qquad y+x = \frac{156}{\tan 7^\circ}$$

$$y+x-y = x = \frac{156}{\tan 7^\circ} - \frac{156}{\tan 27^\circ}$$

$$= 1270.5 - 306.15 = 964.35 \text{ ft}$$