

Law of Sines

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

P. 298 #1-9

1) $A = 32^\circ$ $a = 11.2$ $\frac{a}{\sin 32^\circ} = \frac{13}{\sin 38^\circ}$ $\frac{b}{\sin 110^\circ} = \frac{13}{\sin 38^\circ}$
 $B = 110^\circ$ $b = 19.8$
 $C = 38^\circ$ $c = 13$
 $a = \frac{13 \sin 32^\circ}{\sin 38^\circ}$ $b = \frac{13 \sin 110^\circ}{\sin 38^\circ}$

2) $F = 53^\circ$ $f = 55.5$ $\frac{f}{\sin 53^\circ} = \frac{18}{\sin 15^\circ}$ $\frac{g}{\sin 112^\circ} = \frac{18}{\sin 15^\circ}$
 $G = 112^\circ$ $g = 64.5$
 $H = 15^\circ$ $h = 18$

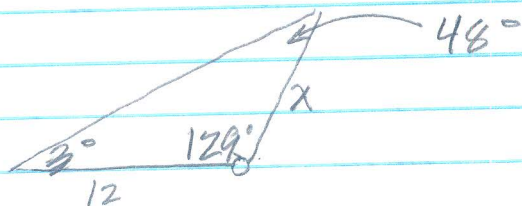
3) $J = 40^\circ$ $j = 16.2$ $\frac{j}{\sin 40^\circ} = \frac{25}{\sin 82^\circ}$ $\frac{l}{\sin 58^\circ} = \frac{25}{\sin 82^\circ}$
 $K = 82^\circ$ $k = 25$
 $L = 58^\circ$ $l = 21.4$

4) $Q = 62^\circ$ $q = 7$ $\frac{r}{\sin 56^\circ} = \frac{7}{\sin 62^\circ}$
 $R = 56^\circ$ $r = 6.6$
 $S = 62^\circ$ $s = 7$

5) $T = 20^\circ$ $t = 29.0$ $\frac{u}{\sin 12^\circ} = \frac{45}{\sin 148^\circ}$ $\frac{v}{\sin 20^\circ} = \frac{45}{\sin 148^\circ}$
 $U = 12^\circ$ $u = 17.7$
 $V = 148^\circ$ $v = 45$

6) $B = 25^\circ$ $b = 12.8$ $\frac{b}{\sin 25^\circ} = \frac{30}{\sin 83^\circ}$ $\frac{c}{\sin 72^\circ} = \frac{30}{\sin 83^\circ}$
 $C = 72^\circ$ $c = 28.7$
 $D = 83^\circ$ $d = 30$

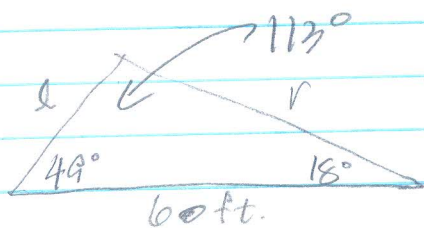
7)



$$\frac{x}{\sin 3^\circ} = \frac{12}{\sin 48^\circ}$$

$$x = 0.85 \text{ ft}$$

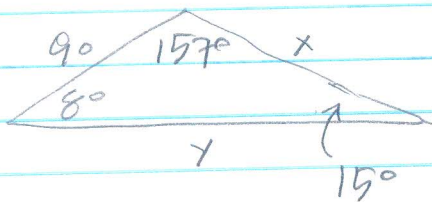
8)



$$\frac{r}{\sin 49^\circ} = \frac{60}{\sin 113^\circ} \quad \frac{l}{\sin 18^\circ} = \frac{60}{\sin 113^\circ}$$

$$\text{right} = 49.2 \text{ ft} \quad \text{left} = 20.1 \text{ ft}$$

9)



$$\text{a) } \frac{x}{\sin 8^\circ} = \frac{90}{\sin 15^\circ}$$

$$x = 48.4$$

$$90 + 48.4 = 138.4 \text{ mi}$$

$$\text{b) } \frac{y}{\sin 157^\circ} = \frac{90}{\sin 15^\circ}$$

$$y = 135.9 \text{ mi}$$