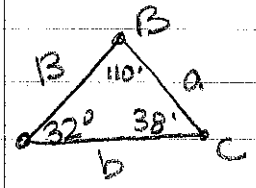
Pg. 298

1. 

$A = 180 - 110 - 38 = \boxed{32°}$

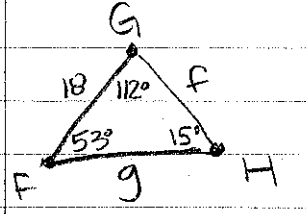
$\frac{a}{\sin A} = \frac{c}{\sin C}$ $\qquad$ $\frac{b}{\sin B} = \frac{c}{\sin C}$

$\frac{a}{\sin 32} = \frac{13}{\sin 38}$ $\qquad$ $\frac{b}{\sin 110} = \frac{13}{\sin 38}$

$a \sin 38 = 13 \sin 32$ $\qquad$ $b \sin 38 = 13 \sin 110$

$a = \frac{13 \sin 32}{\sin 38}$ $\qquad$ $b = \frac{13 \sin 110}{\sin 38}$

$\boxed{a = 11.2}$ $\qquad$ $\boxed{b = 19.8}$

2. 

$H = 180 - 112 - 53 = \boxed{15°}$

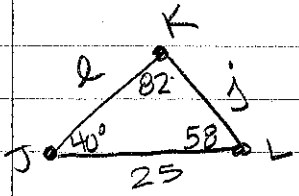
$\frac{h}{\sin H} = \frac{f}{\sin F}$ $\qquad$ $\frac{h}{\sin H} = \frac{g}{\sin G}$

$\frac{18}{\sin 15°} = \frac{f}{\sin 53}$ $\qquad$ $\frac{18}{\sin 15} = \frac{g}{\sin 112}$

$f \sin 15° = 18 \sin 53$ $\qquad$ $g \sin 15 = 18 \sin 112$

$f = \frac{18 \sin 53}{\sin 15°}$ $\qquad$ $g = \frac{18 \sin 112}{\sin 15}$

$\boxed{f = 55.5}$ $\qquad$ $\boxed{g = 64.5}$

3. 

$K = 180 - 40 - 58 = \boxed{82°}$

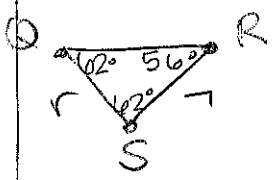
$\frac{K}{\sin K} = \frac{j}{\sin 40'}$ $\qquad$ $\frac{K}{\sin K} = \frac{l}{\sin L}$

$\frac{25}{\sin 82} = \frac{j}{\sin 40}$ $\qquad$ $\frac{25}{\sin 82} = \frac{l}{\sin 58}$

$j \sin 82 = 25 \sin 40$ $\qquad$ $l \sin 82 = 25 \sin 58$

$j = \frac{25 \sin 40}{\sin 82}$ $\qquad$ $l = \frac{25 \sin 58}{\sin 82}$

$\boxed{j = 16.2}$ $\qquad$ $\boxed{l = 21.4}$



4. $S = 180 - 62 - 56 = \boxed{62°}$

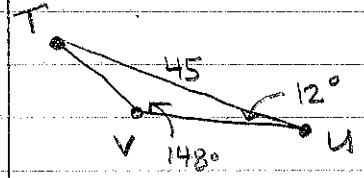
$\frac{q}{\sin Q} = \frac{r}{\sin R}$ $\qquad$ $\frac{q}{\sin Q} = \frac{s}{\sin S}$

$\frac{7}{\sin 62} = \frac{r}{\sin 56}$ $\qquad$ $\frac{7}{\sin 62} = \frac{s}{\sin 62}$

$r \sin 62 = 7 \sin 56$ $\qquad$ $s \sin 62 = 7 \sin 62$

$r = \frac{7 \sin 56}{\sin 62}$ $\qquad$ $s = \frac{7 \sin 62}{\sin 62}$

$\boxed{r = 6.6}$ $\qquad$ $\boxed{s = 7}$

5. 

$T = 180 - 148 - 12 = \boxed{20°}$

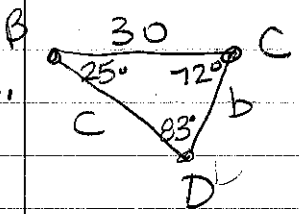
$\frac{v}{\sin V} = \frac{u}{\sin U}$ $\qquad$ $\frac{v}{\sin V} = \frac{t}{\sin T}$

$\frac{45}{\sin 148} = \frac{u}{\sin 12}$ $\qquad$ $\frac{45}{\sin 148} = \frac{t}{\sin 20°}$

$u \sin 148 = 45 \sin 12$ $\qquad$ $t \sin 148 = 45 \sin 20$

$u = \frac{45 \sin 12}{\sin 148}$ $\qquad$ $t = \frac{45 \sin 20'}{\sin 148}$

$\boxed{u = 17.7}$ $\qquad$ $\boxed{t = 29}$

6. 

$D = 180 - 25 - 72 = \boxed{83°}$

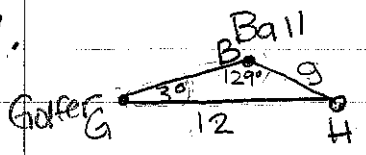
$\frac{d}{\sin D} = \frac{b}{\sin B}$ $\qquad$ $\frac{c}{\sin C} = \frac{d}{\sin D}$

$\frac{30}{\sin 83} = \frac{b}{\sin 25}$ $\qquad$ $\frac{c}{\sin 72} = \frac{30}{\sin 83}$

$b \sin 83 = 30 \sin 25$ $\qquad$ $c \sin 83 = 30 \sin 72$

$b = \frac{30 \sin 25}{\sin 83}$ $\qquad$ $c = \frac{30 \sin 72}{\sin 83}$

$\boxed{b = 12.8}$ $\qquad$ $\boxed{c = 28.7}$

7. 

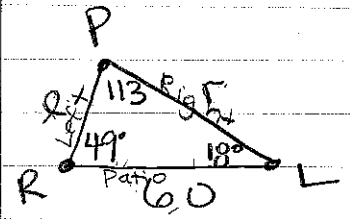
$\frac{g}{\sin G} = \frac{b}{\sin B}$

$\frac{g}{\sin 3} = \frac{12}{\sin 129}$

$g \sin 129 = 12 \sin 3$

$g = \frac{12 \sin 3}{\sin 129}$

$\boxed{g = .8 \text{ ft}}$

8. 

$P = 180 - 49 - 18 = \boxed{113°}$

Left: $\frac{l}{\sin L} = \frac{p}{\sin P}$

$\frac{l}{\sin 18} = \frac{60}{\sin 113}$

$l \sin 113 = 60 \sin 18$

$l = \frac{60 \sin 18}{\sin 113}$

$\boxed{l = 20.1 \text{ ft}}$

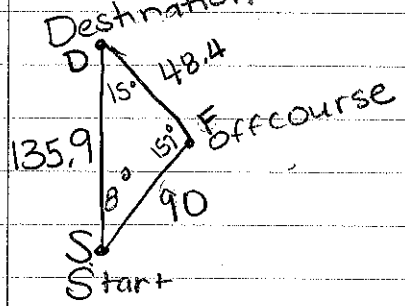
Right: $\frac{r}{\sin R} = \frac{p}{\sin P}$

$\frac{r}{\sin 49} = \frac{60}{\sin 113}$

$r \sin 113 = 60 \sin 49$

$r = \frac{60 \sin 49}{\sin 113}$

$\boxed{r = 49.2 \text{ ft}}$

9. 

$D = 180 - 157 - 8 = \boxed{15°}$

$\frac{s}{\sin S} = \frac{d}{\sin D}$

$\frac{s}{\sin 8} = \frac{90}{\sin 15}$

$s \sin 15 = 90 \sin 8$

$s = \frac{90 \sin 8}{\sin 15}$

$s = 48.4$

$\frac{f}{\sin F} = \frac{d}{\sin d}$

$\frac{f}{\sin 157} = \frac{90}{\sin 15}$

$f \sin 15 = 90 \sin 157$

$f = \frac{90 \sin 157}{\sin 15}$

$f = 135.9$

a.) $90 + 48.4 =$ $\boxed{138.4 \text{ mi}}$

b.) $\boxed{135.9 \text{ mi}}$