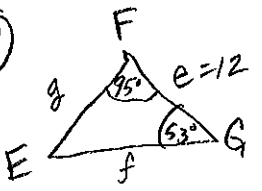
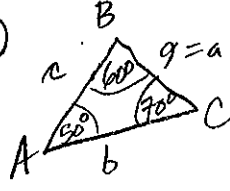



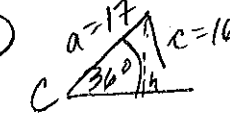
①  $E = 180^\circ - 95^\circ - 53^\circ = 32^\circ$
 $\frac{12}{\sin 32^\circ} = \frac{g}{\sin 53^\circ}, g = \frac{12 \sin 53^\circ}{\sin 32^\circ} = 18.085$ C

② SSA is the ambiguous case, May give 0, 1, 2 solutions D

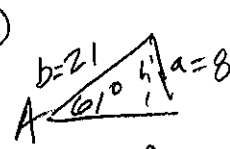
③  $\frac{g}{\sin 50^\circ} = \frac{c}{\sin 70^\circ}, c = \frac{g \sin 70^\circ}{\sin 50^\circ} = 11.040$ A

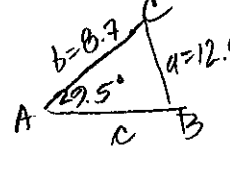
④  $8 > 5 \rightarrow 1 \text{ soln}$ B

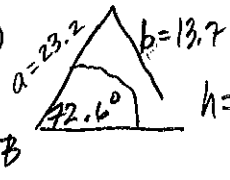
⑤ $55^\circ + 40^\circ + 85^\circ = 180^\circ$, but no side length given, so there are ∞ many similar triangles. E

⑥  $h = 17 \sin 36^\circ = 9.992, 9.992 < 16 < 17$, so two solutions C

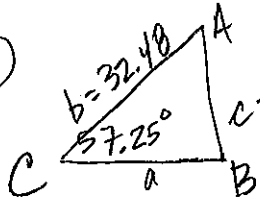
⑦ $62^\circ + 26^\circ + 89^\circ = 177^\circ \neq 180^\circ$, No triangle formed. A

⑧  $h = 21 \sin 61^\circ = 18.367, 8 < 18.367$, too short, No triangle A

⑨  one solution
 $\frac{\sin B}{8.7} = \frac{\sin 29.5^\circ}{12.9}$
 $B = \sin^{-1}\left(\frac{8.7 \sin 29.5^\circ}{12.9}\right)$
 $B = 19.396^\circ$ \rightarrow (stretches B)
 $C = 180^\circ - 29.5^\circ - 19.396^\circ \dots$
 $C = 131.103^\circ$ (stretches C)
 $\frac{c}{\sin 131.103^\circ} = \frac{12.9}{\sin 29.5^\circ}, c = \frac{12.9 \sin 131.103^\circ}{\sin 29.5^\circ}$
 $c = 19.739$

⑩  $h = 23.2 \sin 72.6^\circ = 22.138, 13.7 < 22.138$, too short, No Solution! 😊

(11)



$h = 32.48 \sin 57.25^\circ = 27.316$
 $27.316 < 30.72 < 32.48$ so 2 solutions

Solution 1 (Acute case)

$\frac{\sin B}{32.48} = \frac{\sin 57.25^\circ}{30.72}$
 $B = \sin^{-1}\left(\frac{32.48 \sin 57.25^\circ}{30.72}\right)$
 $B = 62.775^\circ$ (store as B)

$A = 180^\circ - 57.25^\circ - B$
 $A = 59.974^\circ$ (store as A)

$\frac{a}{\sin A} = \frac{30.72}{\sin 57.25^\circ}$

$a = \frac{30.72 \sin A}{\sin 57.25^\circ}$

$a = 31.624$

Solution 2 (Obtuse case)

$B = 180^\circ - 62.77583894^\circ$ ← stored as B

$B = 117.224^\circ$ (store as new B)

$A = 180^\circ - 57.25^\circ - B$

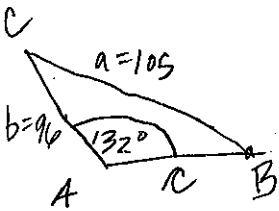
$A = 5.525^\circ$ (store as new A)

$\frac{a}{\sin A} = \frac{30.72}{\sin 57.25^\circ}$

$a = \frac{30.72 \sin A}{\sin 57.25^\circ}$

$a = 3.517$

(12)



$105 > 96$
 so 1 solution

$\frac{\sin B}{96} = \frac{\sin 132^\circ}{105}$

$B = \sin^{-1}\left(\frac{96 \sin 132^\circ}{105}\right)$

$B = 42.800^\circ$ (store as B)

$C = 180^\circ - 132^\circ - 42.8004216^\circ$

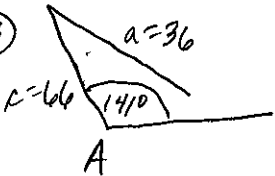
$C = 5.199^\circ$ (store as C)

$\frac{c}{\sin C} = \frac{105}{\sin 132^\circ}$

$c = \frac{105 \sin C}{\sin 132^\circ}$

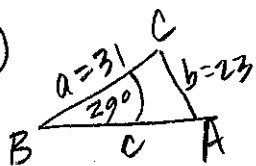
$c = 12.804$

(13)



$36 < 66$, too short, No solution

14



$h = 31 \sin 29^\circ$
 $h = 15.029$

$15.029 < 23 < 31$ so 2 solutions

Solution 1 (Acute Case)

$\frac{\sin A}{31} = \frac{\sin 29^\circ}{23}$

$A = \sin^{-1}\left(\frac{31 \sin 29^\circ}{23}\right)$

$A = 40.801^\circ$ (store as A)

$C = 180^\circ - 29^\circ - 40.80139642^\circ$

$C = 110.198^\circ$ (store as C)

$\frac{c}{\sin C} = \frac{23}{\sin 29^\circ}$

$c = \frac{23 \sin C}{\sin 29^\circ}$

$c = 44.523$

Solution 2 (Obtuse Case)

$A = 180^\circ - 40.80139642^\circ$ (stored as A)

$A = 139.198^\circ$ (store as new A)

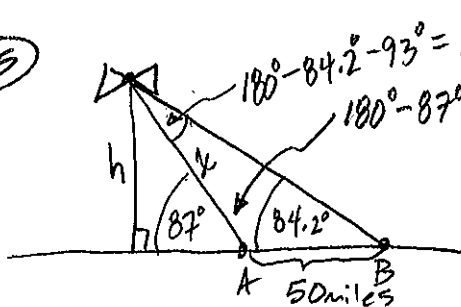
$C = 180^\circ - 29^\circ - 139.198^\circ$

$C = 11.801^\circ$ (store as new C)

$c = \frac{23 \sin C}{\sin 29^\circ}$

$c = 9.702$

15



$180^\circ - 84.2^\circ - 93^\circ = 2.8^\circ$ (a)
 $180^\circ - 87^\circ = 93^\circ$

$\frac{x}{\sin 84.2^\circ} = \frac{50}{\sin 2.8^\circ}$

$x = \frac{50 \sin 84.2^\circ}{\sin 2.8^\circ}$

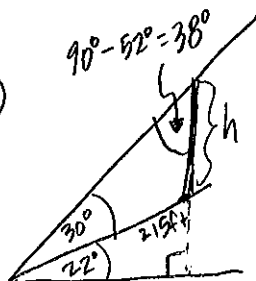
$x = 1018.306$ miles (store as x)

(b) $\sin 87^\circ = \frac{h}{1018.306445^\circ}$

$h = (1018.306^\circ) \sin 87^\circ$

$h = 1016.910$ miles

16



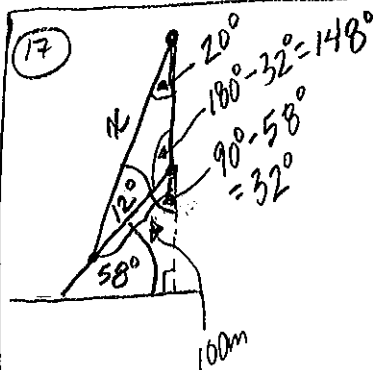
$90^\circ - 52^\circ = 38^\circ$

$\frac{h}{\sin 30^\circ} = \frac{215}{\sin 38^\circ}$

$h = \frac{215 \sin 30^\circ}{\sin 38^\circ}$

$h = 174.608$ ft

17



100m

So $\frac{x}{\sin 148^\circ} = \frac{100}{\sin 20^\circ}$

$x = \frac{100 \sin 148^\circ}{\sin 20^\circ}$

$x = 154.938$ meters