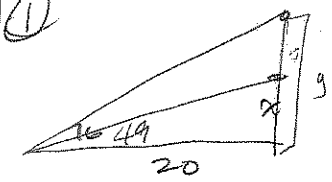
LOS and LOC Word Problem Answers

1. 57.2 ft
2. 25.6 ft longer, new angle 28.2 degrees
3. 912.4 km
4. 674.5 ~~ft~~
5. 9.3 in
6. 22 in.
7. 367.25 ft.
8. 218.0 ft.
9. A - 35 mi., B - 65.8 mi.
10. 16 in. and 22 in.
11. about 97 miles, K = 6946 mi^2
12. 852.1 ft.

LOS / LOC Word Problems

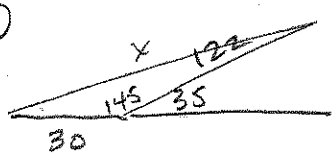
① 

$\tan 76 = \frac{y}{20}$ $\quad \tan 49 = \frac{x}{20}$

$20\tan 76 = y$ $\quad 20\tan 49 = x$

$y = 80.2$ $\quad x = 23$

$x - y =$ **52.2 ft**

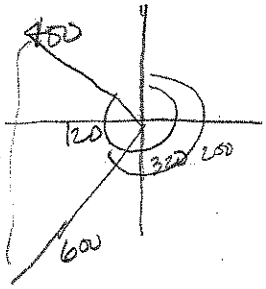
② 

$x^2 = 30^2 + 122^2 - 2(30)(122)\cos 145$

$x = 147.6$ ft $\quad$ **25.6 ft longer**

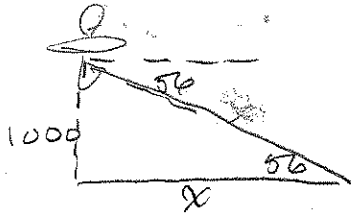
$122^2 = 30^2 + 25.6^2 - 2(30)(25.6)\cos A$

$A = 28.2°$ new angle

③ 

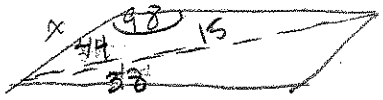
$x^2 = 450^2 + 600^2 - 2(450)(600)\cos 120$

$x = 912.4$ km

④ 

$\tan 56 = \frac{1000}{x}$

$x = \frac{1000}{\tan 56}$ $\quad x = 674.5$ ft

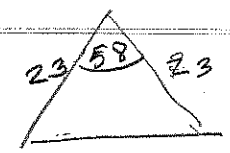
⑥ 

$\frac{\sin 98}{15} = \frac{\sin 38}{x}$

$x\sin 98 = 15\sin 38$

$x = \frac{15\sin 38}{\sin 98}$

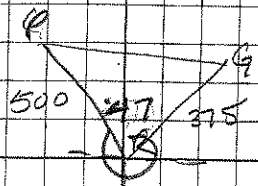
$x = 9.32$

⑥ 

$b^2 = 23^2 + 23^2 - 2(23)(23)\cos 58$

$b = 22.3$ in

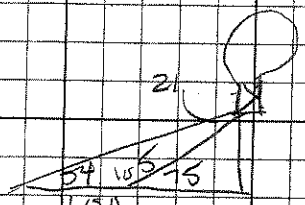
(7)



$x^2 = 500^2 + 375^2 - 2(500)(375)\cos 47$

$x = 367.25$ ft

(8)



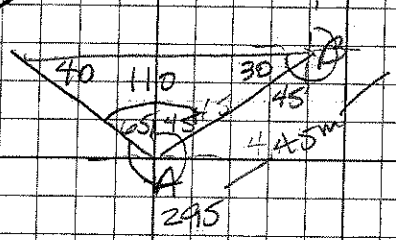
$\frac{\sin 21}{100} = \frac{\sin 54}{x}$

$x = 225.6$

$\sin 75 = \frac{h}{225.6}$

$h = 218$ ft

(9)



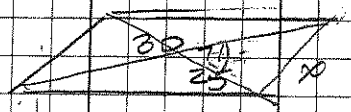
$\frac{\sin 40}{45} = \frac{\sin 30}{x}$

$x = 35$ A → fire 35

$\frac{\sin 40}{45} = \frac{\sin 110}{y}$

$y = 65.8$ B → fire 65.8

(10)



$x^2 = 15^2 + 12.5^2 - 2(15)(12.5)\cos 41$

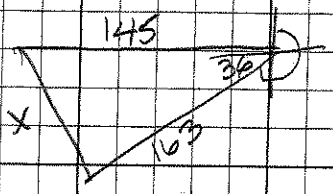
$b = 16$

16 ft 22

$y^2 = 15^2 + 12.5^2 - 2(15)(12.5)\cos 109$

$y = 22$

(11)



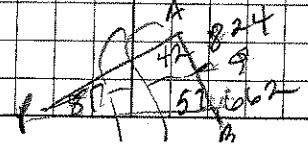
$x^2 = 145^2 + 163^2 - 2(145)(163)\cos 36$

$x = 96.7 \approx 97$ miles

$K = \frac{1}{2}(145)(163)\sin 36$

$= 6944.6$ mi^2

(12)



$\frac{\sin 42}{918} = \frac{\sin 81}{1486}$

$x^2 = 642^2 + 1007^2 - 2(642)(1007)\cos 57$

$x = 852.1$