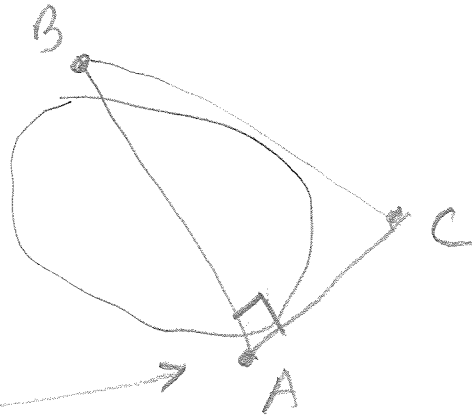


①

Please note
additional given
information



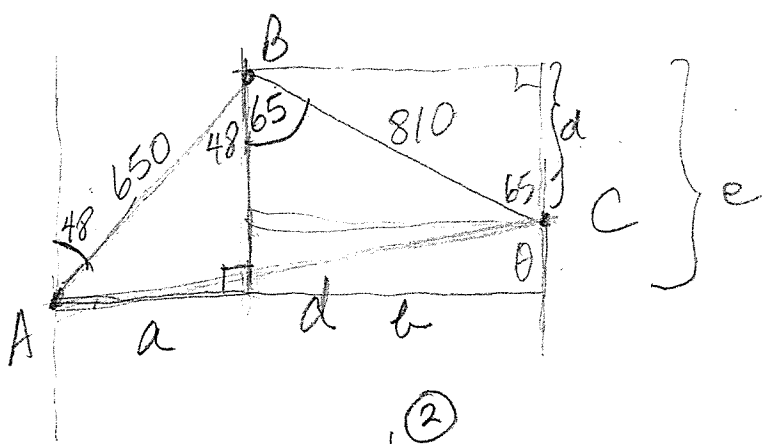
a) $N 58^\circ E$

b) $m\angle a = 54$

$$\tan 54 = \frac{d}{50}$$

$$d = 50 \tan 54 = 68.8 \text{ miles}$$

2



① $\sin 48 = \frac{a}{650}$
 $a \approx 483.0441$

② $\sin 65 = \frac{b}{810}$
 $b \approx 734.1093$

③ $\cos 65 = \frac{d}{810}$
 $d \approx 342.3208$

④ $\cos 48 = \frac{e}{650}$
 $e \approx 434.9349$

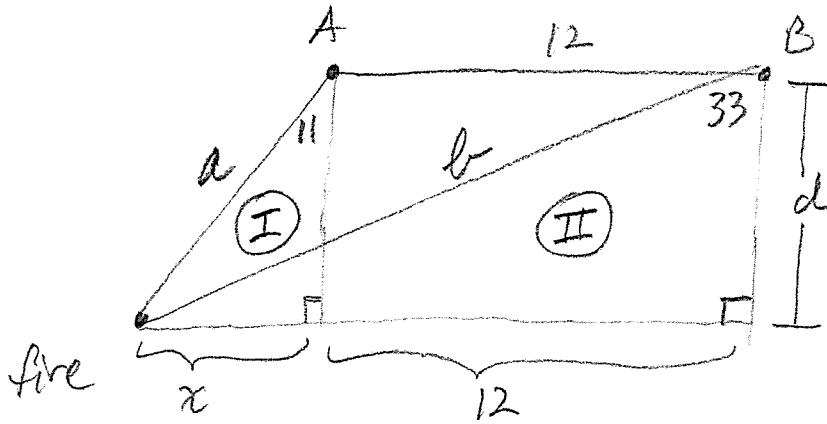
⑤ $(AC)^2 = (a+b)^2 + (e-d)^2$
 $= 1217^2 + 92.68^2$
 $AC^2 = 1489678.434$
 $AC = 1220.5 \text{ mi}$

↑
distance

⑥ $\tan \theta = \frac{1217}{92.68} = 85.645$

$N 85.6^\circ E$ bearing

③



$$\textcircled{\text{I}} \quad \tan 11 = \frac{x}{d}$$

$$\textcircled{\text{II}} \quad \tan 33 = \frac{x+12}{d}$$

$$d = \frac{x}{\tan 11}$$

$$d = \frac{(x+12)}{\tan 33}$$

$$\frac{x}{\tan 11} = \frac{(x+12)}{\tan 33}$$

$$x \tan 33 = (x+12) \tan 11$$

$$x \tan 33 = x \tan 11 + 12 \tan 11$$

$$x \tan 33 - x \tan 11 = 12 \tan 11$$

$$x(\tan 33 - \tan 11) = 12 \tan 11$$

$$x = \frac{12 \tan 11}{\tan 33 - \tan 11} \approx 5.1262$$

a

$$\sin 11 = \frac{x}{a}$$

$$a = \frac{5.1262}{\sin 11}$$

$$\boxed{\approx 26.9 \text{ km}}$$

b

$$\sin 33 = \frac{x+12}{b}$$

$$b = \frac{5.1262 + 12}{\sin 33}$$

$$b \approx 31.4 \text{ km}$$