

$$1. A = \frac{1}{2}(4.7)(12.4) \sin 47^{\circ} 20'$$

$$A = 21.4 \text{ mi}^2 \star$$

$$2. C = 180^{\circ} - 34.4^{\circ} - 14.8^{\circ}$$

$$C = 130.8^{\circ}$$

$$\frac{c}{\sin 130.8^{\circ}} = \frac{13.9}{\sin 34.4^{\circ}}$$

$$c = 18.6 \text{ m}$$

$$A = \frac{1}{2}(13.9)(18.6) \sin 14.8^{\circ}$$

$$A = 33 \text{ m}^2 \star$$

$$3. s = \frac{15+17+29}{2} = 30.5 \text{ in}$$

$$A = \sqrt{30.5(30.5-15)(30.5-17)(30.5-29)}$$

$$A = 97.8 \text{ in}^2 \star$$

$$4. C = 180^{\circ} - 35^{\circ} - 50^{\circ} = 95^{\circ} \star$$

$$\frac{12}{\sin 95^{\circ}} = \frac{c}{\sin 50^{\circ}} \quad \left\{ \begin{array}{l} \frac{12}{\sin 95^{\circ}} = \frac{a}{\sin 35^{\circ}} \\ c = 9.2 \star \\ a = 6.9 \star \end{array} \right.$$

$$5. A = 180^{\circ} - 24.8^{\circ} - 61.3^{\circ} = 93.9^{\circ} \star$$

$$\frac{8.2}{\sin 93.9^{\circ}} = \frac{c}{\sin 61.3^{\circ}} \quad \left\{ \begin{array}{l} \frac{8.2}{\sin 93.9^{\circ}} = \frac{b}{\sin 24.8^{\circ}} \\ c = 7.2 \text{ cm} \star \\ b = 3.4 \text{ cm} \star \end{array} \right.$$

$$6. 9^2 = 4^2 + 7^2 - 2(4)(7) \cos C$$

$$c = 92.3^{\circ} \star$$

$$\frac{9}{\sin 92.3^{\circ}} = \frac{7}{\sin B}$$

$$B = \sin^{-1} \left[ \frac{7 \sin 92.3^{\circ}}{9} \right]$$

$$B = 51^{\circ} \star$$

$$\left. \begin{array}{l} 180^{\circ} - 51^{\circ} - \\ 92.3^{\circ} \end{array} \right\} A = 36.7^{\circ} \star$$

$$7. a^2 = 25 + 81 - 2(45) \cos 120^{\circ}$$

$$a = 12.3 \text{ yd.} \star$$

$$\frac{12.3}{\sin 120^{\circ}} = \frac{9}{\sin B}$$

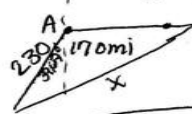
$$B = 39.3^{\circ} \star$$

$$C = 180^{\circ} - 39.3^{\circ} - 120^{\circ}$$

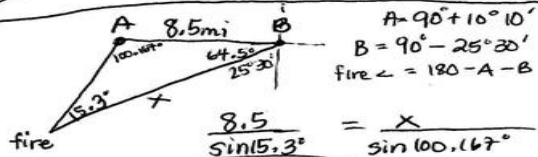
$$C = 20.7^{\circ} \star$$

$$8. \left. \begin{array}{l} A = 90^{\circ} + 31.67^{\circ} \\ A = 129.67^{\circ} \end{array} \right\} \begin{array}{l} x^2 = 230^2 + 170^2 - \\ 2(230)(170) \cos 129.67^{\circ} \end{array}$$

$$x = 362.9 \text{ mi} \star$$



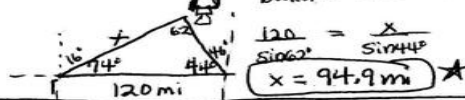
$$9. \left. \begin{array}{l} A = 90^{\circ} + 10^{\circ} 10' \\ B = 90^{\circ} - 25^{\circ} 30' \end{array} \right\} \text{fire } \angle = 180 - A - B$$



$$\frac{8.5}{\sin 5.3^{\circ}} = \frac{x}{\sin 100.67^{\circ}}$$

$$x = 31.7 \text{ mi} \star$$

$$10. \text{ballon } \angle = 180 - 74 - 44$$



$$\frac{120}{\sin 62^{\circ}} = \frac{x}{\sin 44^{\circ}}$$

$$x = 94.9 \text{ mi} \star$$

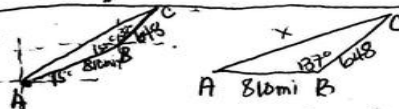
$$11. x^2 = 220^2 + 250^2 - 2(220)(250) \cos 105^{\circ}$$

$$x = 373.3 \text{ m} \star$$



$$12. x^2 = 810^2 + 648^2 - 2(810)(648) \cos 137^{\circ}$$

$$x = 1357.9 \text{ mi} \star$$



$$13. 235^2 = 178^2 + 273^2 - 2(178)(273) \cos \theta$$

$$\theta = 58.4^{\circ} \star$$

