

$$1) C = 102.3^\circ \quad B = 28.7^\circ \quad b = 27.4$$

$$\frac{\sin 49^\circ}{a} = \frac{\sin 28.7^\circ}{27.4} = \frac{\sin 102.3^\circ}{c}$$

$$A = 49^\circ$$

$$a = 43.06$$

$$c = 55.75$$

$$2) a = 22 \quad b = 12 \quad A = 42^\circ$$

$$\frac{\sin 42^\circ}{22} = \frac{\sin B}{12} = \frac{\sin C}{c}$$

$$B = 21.41^\circ \text{ or } ~~158.59~~$$

$$C = 116.59^\circ$$

$$c = 29.4$$

$$3) a = 15 \quad b = 25 \quad A = 85^\circ$$

$$\frac{\sin 85^\circ}{15} = \frac{\sin B}{25} = \frac{\sin C}{c}$$

No  $\Delta$

$$4) a = 12 \quad b = 31 \quad A = 20.5^\circ$$

$$\frac{\sin 20.5^\circ}{12} = \frac{\sin B}{31} = \frac{\sin C}{c}$$

$$B = 64.78^\circ \text{ or } 115.22^\circ$$

$$C = 94.72^\circ \text{ or } 44.28^\circ$$

$$c = 34.15 \text{ or } 23.92$$

$$5) A = 60^\circ \quad a = 9 \quad c = 10$$

$$\frac{\sin 60^\circ}{9} = \frac{\sin B}{b} = \frac{\sin C}{10}$$

$$C = 74.21^\circ \text{ or } 105.79^\circ$$

$$B = 45.79^\circ \text{ or } 14.21^\circ$$

$$b = 7.45 \text{ or } 2.55$$

$$6) A = 110^\circ \quad a = 125 \quad b = 100$$

$$\frac{\sin 110^\circ}{125} = \frac{\sin B}{100} = \frac{\sin C}{c}$$

$$B = 48.74^\circ \text{ or } ~~131.26~~$$

$$C = 21.26^\circ$$

$$c = 48.23$$

$$7) a = 6 \quad b = 8 \quad c = 12$$

$$12^2 = 6^2 + 8^2 - 2(6 \cdot 8) \cos C$$

$$\frac{\sin A}{6} = \frac{\sin B}{8} = \frac{\sin 117.28^\circ}{12}$$

$$C = 117.28^\circ$$

$$A = 26.38^\circ$$

$$B = 36.34^\circ$$

8)  $a=45$   $b=30$   $c=72$

$$72^2 = 45^2 + 30^2 - 2(45 \cdot 30) \cos C$$

$$\frac{\sin A}{45} = \frac{\sin B}{30} = \frac{\sin 146.79^\circ}{72}$$

$$C = 146.79^\circ$$

$$A = 20.02^\circ$$

$$B = 13.19^\circ$$

9)  $C=108^\circ$   $a=10$   $b=7$

$$c^2 = 10^2 + 7^2 - 2(10 \cdot 7) \cos 108^\circ$$

$$\frac{\sin A}{10} = \frac{\sin B}{7} = \frac{\sin 108^\circ}{13.87}$$

$$c = 13.87$$

$$A = 43.29^\circ$$

$$B = 28.68^\circ$$

10)  $a=1.42$   $b=.75$   $c=1.25$

$$1.42^2 = .75^2 + 1.25^2 - 2(.75 \cdot 1.25) \cos A$$

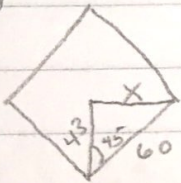
$$\frac{\sin 86.68^\circ}{1.42} = \frac{\sin B}{.75} = \frac{\sin C}{1.25}$$

$$A = 86.68^\circ$$

$$B = 31.82^\circ$$

$$C = 61.5^\circ$$

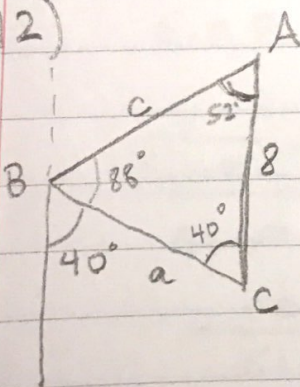
11)



$$x^2 = 43^2 + 60^2 - (2 \cdot 43 \cdot 60) \cos 45^\circ$$

$$x = 42.43 \text{ ft}$$

12)



$$\frac{\sin 52^\circ}{a} = \frac{\sin 88^\circ}{8} = \frac{\sin 40^\circ}{c}$$

$$a = 6.31$$

$$c = 5.15$$

$$+ 8$$

$$\underline{\underline{19.46 \text{ km}}}$$