

3.1 Law of Sines

1. $A = 102.4^\circ$ $C = 16.7^\circ$ $a = 21.6$

$$\frac{\sin 102.4^\circ}{21.6} = \frac{\sin 16.7^\circ}{c}$$

$$c \sin 102.4^\circ = 21.6 \sin 16.7^\circ$$

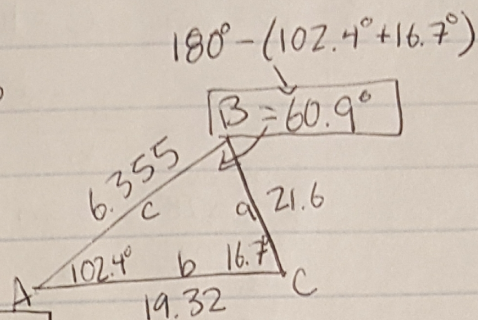
$$c = \frac{21.6 \sin 16.7^\circ}{\sin 102.4^\circ} \quad \boxed{c = 6.355}$$

$$\frac{\sin 102.4^\circ}{21.6} = \frac{\sin 60.9^\circ}{b}$$

$$b \sin 102.4^\circ = 21.6 \sin 60.9^\circ$$

$$b = \frac{21.6 \sin 60.9^\circ}{\sin 102.4^\circ}$$

$$\boxed{b = 19.32}$$



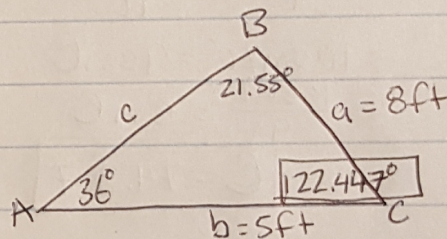
2. $A = 36^\circ$ $a = 8\text{ft}$ $b = 5\text{ft}$

$$\frac{\sin 36^\circ}{8} = \frac{\sin B}{5}$$

$$5 \sin 36^\circ = 8 \sin B$$

$$\frac{5 \sin 36^\circ}{8} = \sin B$$

$$\boxed{B = 21.55^\circ}$$



$$\frac{\sin 36^\circ}{8} = \frac{\sin 122.447^\circ}{c}$$

$$\frac{8 \sin 122.447^\circ}{\sin 36^\circ} = c$$

$$\boxed{c = 11.486\text{ft}}$$

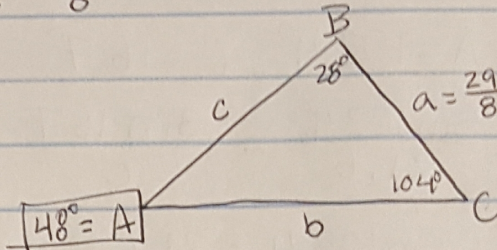
3. $B = 28^\circ$ $C = 104^\circ$ $a = \frac{29}{8}$

$$\frac{\sin 48^\circ}{\frac{29}{8}} = \frac{\sin 28^\circ}{b}$$

$$\frac{29}{8} \sin 28^\circ = b \sin 48^\circ$$

$$\frac{29 \sin 28^\circ}{8 \sin 48^\circ} = b$$

$$\boxed{2.290 = b}$$



$$\frac{\sin 48^\circ}{\frac{29}{8}} = \frac{\sin 104^\circ}{c}$$

$$\frac{29 \sin 104^\circ}{8 \sin 48^\circ} = c$$

$$\boxed{4.733 = c}$$

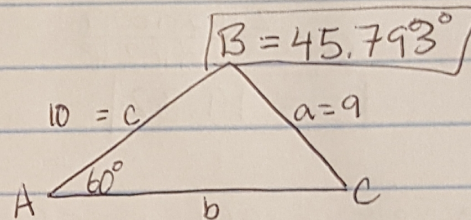
4. $A = 60^\circ$ $a = 9$ $c = 10$

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

$$10 \sin 60^\circ = 9 \sin C$$

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

$$\boxed{C = 74.207^\circ}$$



$$\frac{\sin 60^\circ}{9} = \frac{\sin 45.793^\circ}{b}$$

$$9 \sin 45.793^\circ = b \sin 60^\circ$$

$$\frac{9 \sin 45.793^\circ}{\sin 60^\circ} = b$$

$$\boxed{7.450 = b}$$

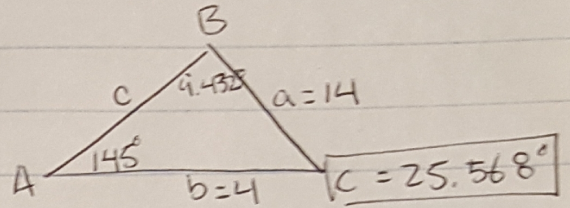
5. $A = 145^\circ$ $a = 14$ $b = 4$

$$\frac{\sin 145^\circ}{14} = \frac{\sin B}{4}$$

$$14 \sin B = 4 \sin 145^\circ$$

$$\sin B = \frac{4 \sin 145^\circ}{14}$$

$$\boxed{B = 9.432^\circ}$$



$$\frac{\sin C}{c} = \frac{\sin A}{a}$$

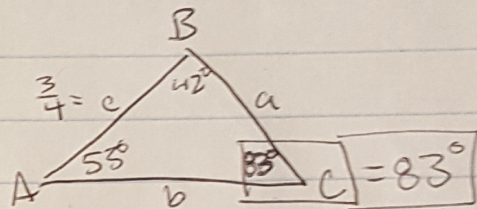
$$\frac{\sin 25.568^\circ}{c} = \frac{\sin 145^\circ}{14}$$

$$\boxed{c = 24.408}$$

6. $A = 55^\circ$ $B = 42^\circ$ $c = \frac{3}{4}$

$$\frac{\sin 55^\circ}{a} = \frac{\sin 83^\circ}{3/4}$$

$$\boxed{a = 0.619}$$



~~$$\frac{\sin 42^\circ}{b} = \frac{\sin 83^\circ}{3/4}$$~~

$$\frac{\sin 42^\circ}{b} = \frac{\sin 83^\circ}{3/4}$$

$$\boxed{b = 0.506}$$