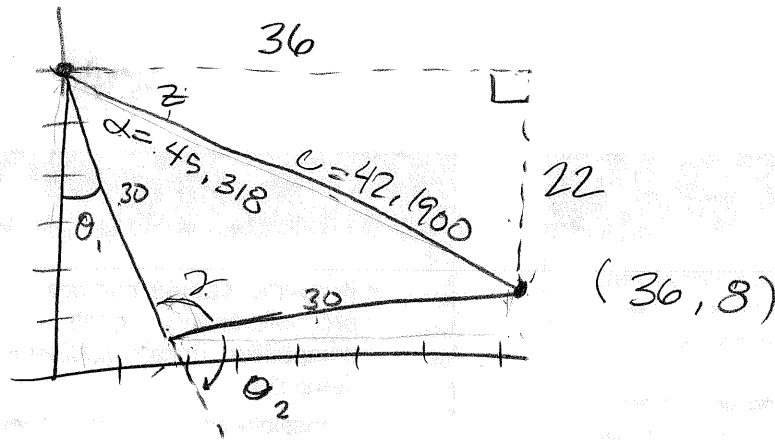


#39



$$c^2 = 22^2 + 36^2$$

$$c^2 =$$

$$c = 42.190$$

$$c^2 = a^2 + b^2 - 2ab \cos \gamma$$

$$(42.190)^2 = 30^2 + 30^2 - 2(30)(30) \cos \gamma$$

$$\begin{array}{r} 1780 \\ -1800 \end{array} = \begin{array}{r} 900 + 900 \\ -1800 \end{array} - 1800 \cos \gamma$$

$$\frac{-20}{-1800} = \frac{-1800 \cos \gamma}{-1800}$$

$$\cos \gamma = 0.01111$$

$$\gamma = 89.3634$$

$$\theta_2 + \gamma = 180$$

$$\theta_2 = 180 - 89.3634$$

$$\theta_2 = 90.6366$$

$$30 \cdot \frac{\sin \alpha}{30} = \frac{\sin 89.3634}{42.1900} \cdot 30$$

$$\sin \alpha = .0237 \cdot 30$$

$$\sin \alpha = .711$$

$$\alpha = 45.318$$

$$\tan z = \frac{22}{36}$$

$$z = \tan^{-1}\left(\frac{22}{36}\right) = 31.4296$$

$$\theta_1 + \alpha + z = 90$$

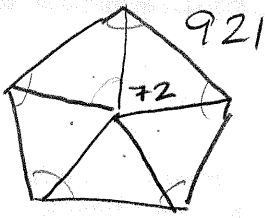
$$\theta_1 = 90 - 45.318 - 31.4296$$

$$\theta_1 = 13.3$$

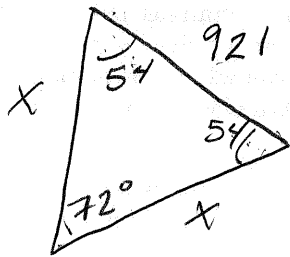
$$\theta_2 = 90.6$$

$$\theta_1 = 13.1$$

#27



$$\frac{360}{5} = 72$$



$$180 - 72 = 108$$

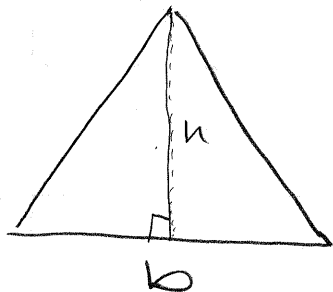
$$\sin 54 \cdot \frac{X}{\sin 54} = \frac{921}{\sin 72} \cdot \sin 54$$

$$X = 783.45 \text{ ft}$$

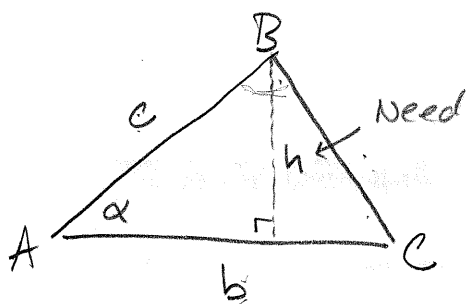
$$921^2 = X^2 + X^2 - 2X \cdot X \cdot \cos 72^\circ$$

$$921^2 = 2X^2 - (2\cos 72) X^2$$

Sec 5.3 Area of Triangle



$$A = \frac{1}{2}bh$$



$$c \sin \alpha = \frac{h}{c} \cdot c$$

$$c \sin \alpha = h$$

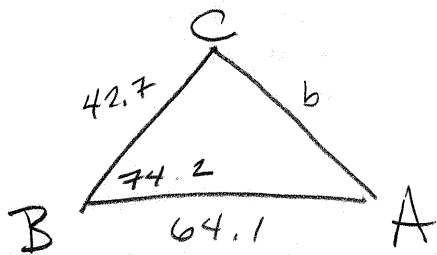
$$A = \frac{1}{2}bc \sin \alpha$$

$$\star A = \frac{1}{2}ab \sin \gamma$$

$$A = \frac{1}{2}ac \sin \beta$$

Area formula
if I know
2 sides and
the angle between

#2 $a = 42.7$, $c = 64.1$, $\beta = 74.2$



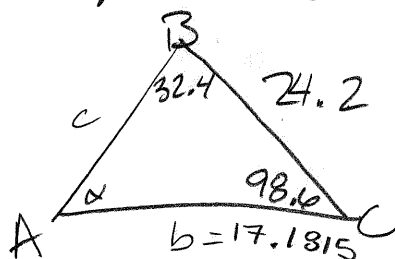
$$A = \frac{1}{2}(42.7)(64.1) \sin 74.2$$

$$= 1316.83$$

#6 $\gamma = 98.6^\circ$, $\beta = 32.4^\circ$, $a = 24.2$

$$\alpha = 180 - 32.4 - 98.6$$

$$\alpha = 49^\circ$$



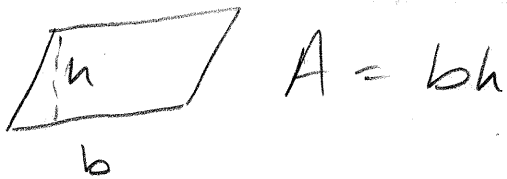
$$\frac{\sin 32.4}{\sin 32.4} = \frac{24.2}{\sin 49}$$

$$b = 17.1815$$

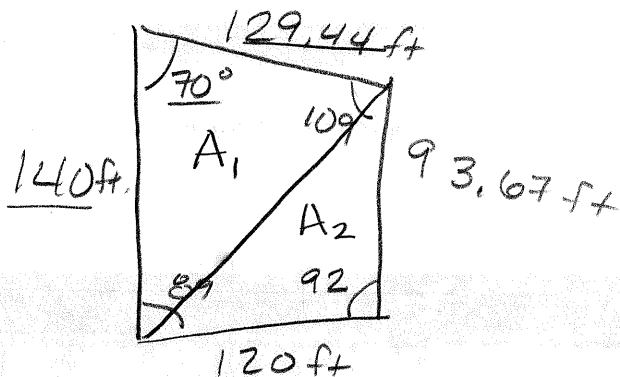
$$A = \frac{1}{2}(24.2)(17.1815) \sin 98.6$$

$$= 205.6$$

What is a Quadrilateral?
is a 4 sided polygon



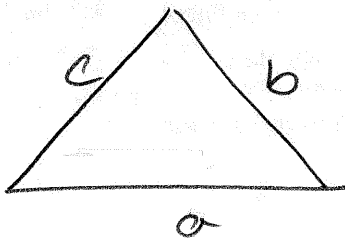
#12



$$A_1 = \frac{1}{2} (140)(129.44) \sin 70^\circ = 8514.3669$$

$$A_2 = 5616.7763$$

$$A_{\text{Quadr}} = 14131.14$$



#13 $a = 16, b = 9$

$c = 10$

$$S = \frac{16+9+10}{2} = 17.5$$

$$A = \sqrt{17.5(17.5-16)(17.5-9)(17.5-10)}$$

$$A = \sqrt{17.5(1.5)(8.5)(7.5)} = \sqrt{1673.4375} = 40.9077$$

$$\boxed{40.9}$$

Heron's Area Formula

$$A = \sqrt{S(S-a)(S-b)(S-c)}$$

Where $S = \frac{a+b+c}{2}$

3 options

$A = \frac{1}{2}bh$, $A = \frac{1}{2}ab \sin \gamma$, Heron's Formula