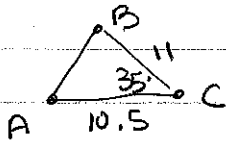


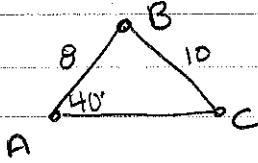
# Review WS

1.



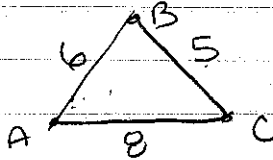
SAS → Cosines

2.



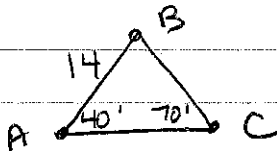
ASS → Sines

3.



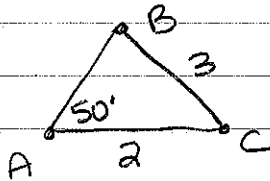
SSS → Cosines

4.



AAS → Sines

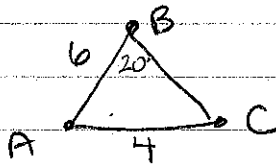
5.



acute:  $3 > 2$

1

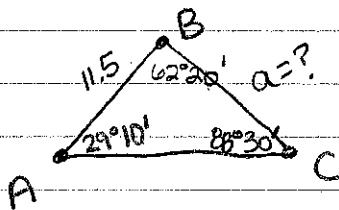
6.



acute:  $4 < 6$

2

7.



$$\angle C: 180 - 62^{\circ}20' - 29^{\circ}10' = 88.5 \\ = 88^{\circ}30'$$

side a:

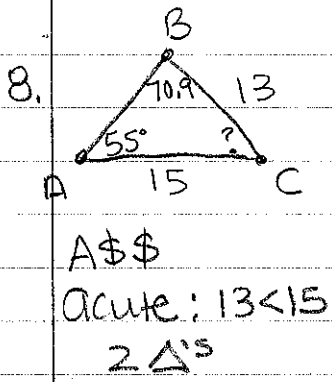
$$\frac{a}{\sin A} = \frac{c}{\sin C}$$

$$\frac{a}{\sin 29^{\circ}10'} = \frac{11.5}{\sin 88^{\circ}30'}$$

$$a \sin 88^{\circ}30' = 11.5 \sin 29^{\circ}10'$$

$$a = \frac{11.5 \sin 29^{\circ}10'}{\sin 88^{\circ}30'}$$

$$a = 5.6$$



Angle B:

$$\frac{a}{\sin A} = \frac{b}{\sin B}$$

$$\frac{13}{\sin 55} = \frac{15}{\sin B}$$

$$13 \sin B = 15 \sin 55$$

$$\sin B = \frac{15 \sin 55}{13}$$

$$B = \sin^{-1}\left(\frac{15 \sin 55}{13}\right)$$

$$B = 70.9^\circ$$

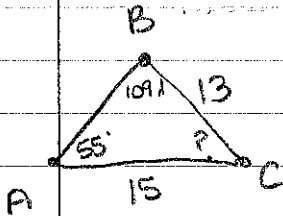
Angle C:

$$180$$

$$- 55^\circ$$

$$- 70.9^\circ$$

$$\boxed{54.1^\circ}$$

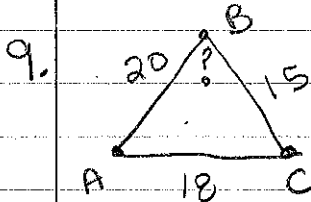


Angle B:

$$180^\circ - 70.9^\circ = 109.1$$

Angle C:

$$180^\circ - 55^\circ - 109.1^\circ = \boxed{15.9^\circ}$$



$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$18^2 = 15^2 + 20^2 - 2(15)(20) \cos B$$

$$-15^2 - 15^2 - 20^2$$

$$-20^2$$

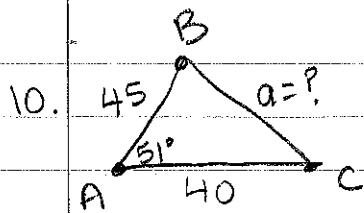
$$-301 = -600 \cos B$$

$$\frac{301}{600} = \cos B$$

$$600$$

$$B = \cos^{-1}\left(\frac{301}{600}\right)$$

$$\boxed{B = 59.9^\circ}$$

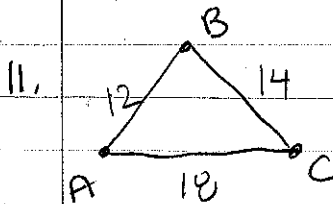


$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$a^2 = 40^2 + 45^2 - 2(40)(45) \cos 51^\circ$$

$$a^2 = 1359.4$$

$$a = 36.9$$



Angle B is largest

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$18^2 = 14^2 + 12^2 - 2(14)(12) \cos B$$

$$-14^2 - 12^2 - 12^2$$

$$-12^2$$

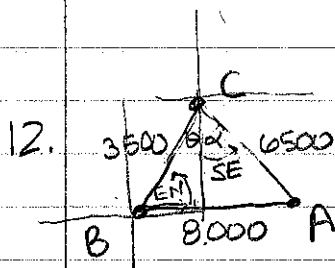

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$$-16 = -336 \cos B$$

$$\frac{16}{336} = \cos B$$

$$B = \cos^{-1}\left(\frac{16}{336}\right)$$

$$B = 87.3^\circ$$



Angle B:

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$6500^2 = 3500^2 + 8000^2 - 2(3500)(8000) \cos B$$

$$-3500^2 - 8000^2 - 8000^2$$


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$$-34000000 = -56000000 \cos B$$

$$\frac{34}{56} = \cos B$$

$$B = \cos^{-1}\left(\frac{34}{56}\right)$$

$$B = 52.6^\circ N$$

Angle C:

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

$$8000^2 = 3500^2 + 6500^2 - 2(3500)(6500) \cos C$$

$$-3500^2 - 6500^2$$

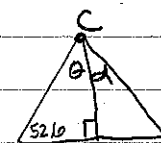

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$$9500000 = -4550000 \cos C$$

$$- \frac{95}{455} = \cos C$$

$$C = \cos^{-1}\left(\frac{-95}{455}\right)$$

$$C = 102.1$$

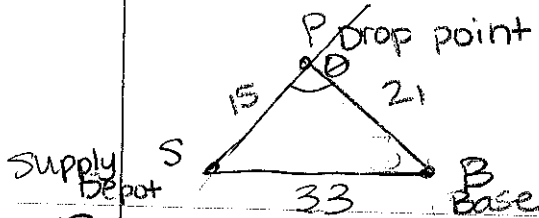


$$\theta = 90 - 52.6$$

$$\theta = 37.4$$

$$\alpha = \angle C - \theta = 102.1 - 37.4$$

$$= 64.7^\circ E$$



13.

$$p^2 = b^2 + s^2 - 2bs \cos P$$

$$33^2 = 15^2 + 21^2 - 2(15)(21) \cos P$$

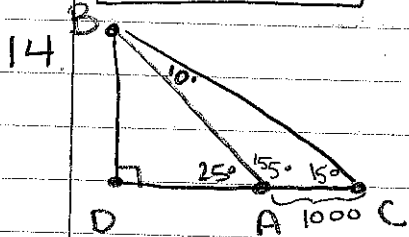
$$-15^2 \quad -21^2 \quad -21^2$$

$$423 = -630 \cos P$$

$$\frac{423}{-630} = \cos P$$

$$P = \cos^{-1} \left( \frac{423}{-630} \right)$$

$$P = 132.2^\circ$$



$$\frac{180}{-25}$$

$$155^\circ = \angle BAC$$

$$\frac{180}{-155}$$

$$-15$$

$$10^\circ = \angle ABC$$

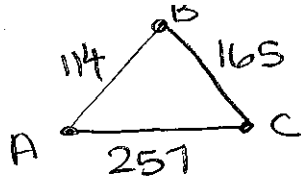
$$\frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{1000}{\sin 10} = \frac{c}{\sin 15}$$

$$c \sin 10 = 1000 \sin 15$$

$$c = \frac{1000 \sin 15}{\sin 10}$$

$$c = 1490.5 \text{ ft}$$



15. a  $b^2 = a^2 + c^2 - 2ac \cos B$

$$257^2 = 165^2 + 114^2 - 2(165)(114) \cos B$$

$$-165^2 - 114^2 - 114^2$$

$$25828 = -37620 \cos B$$

$$-25828 = \cos B$$

$$37620 \quad B = \cos^{-1} \left( \frac{-25828}{37620} \right)$$

$$B = 133.4^\circ$$

b.  $S = \frac{114 + 165 + 257}{2}$

$$S = 268$$

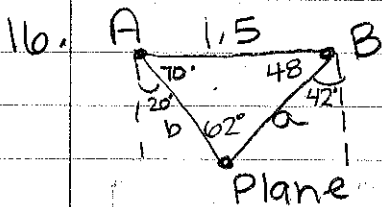
$$A = \sqrt{268(268-114)(268-165)(268-257)}$$

$$A = \sqrt{268(154)(103)(11)}$$

$$A = \sqrt{46761176}$$

$$A = 6838.2 \text{ m}^2$$

c.  $6838.2(94)(.045) = \$28925.65$



90	90	180
-20	-42	-70
70	48	-48
		62

A to Plane:

$$\frac{b}{\sin B} = \frac{P}{\sin P}$$

$$\frac{b}{\sin 48} = \frac{1.5}{\sin 62}$$

$$b \sin 62 = 1.5 \sin 48$$

$$b = \frac{1.5 \sin 48}{\sin 62}$$

$$b = 1.3 \text{ mi}$$

B to Plane:

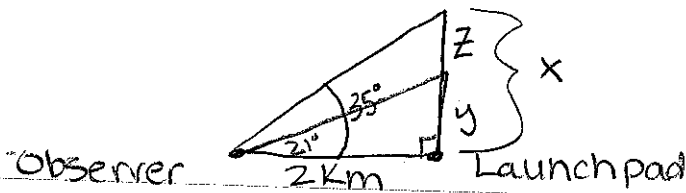
$$\frac{a}{\sin A} = \frac{P}{\sin P}$$

$$\frac{a}{\sin 70} = \frac{1.5}{\sin 62}$$

$$a \sin 62 = 1.5 \sin 70$$

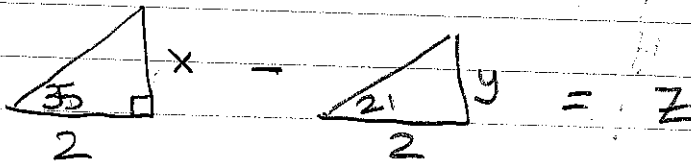
$$a = \frac{1.5 \sin 70}{\sin 62}$$

$$a = 1.6 \text{ mi}$$



17.

a)



$$\tan 35 = \frac{x}{2} \quad \tan 21 = \frac{y}{2}$$

$$x = 2 \tan 35 \quad y = 2 \tan 21$$

$$x = 1.4$$

$$y = .8$$

$$1.4 - .8 = \boxed{.6 \text{ km}}$$

b)

$$\frac{.6 \text{ km}}{5 \text{ sec}} = \boxed{.12 \text{ km/sec}}$$

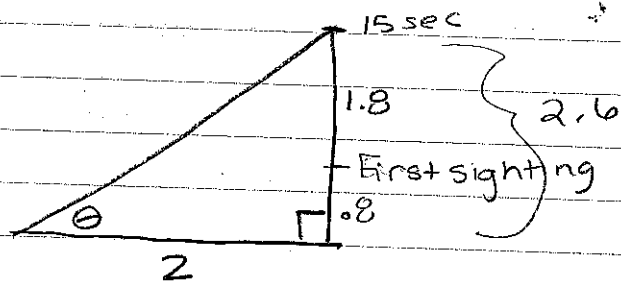
c)

$$.6 \leftarrow 5 \text{ sec}$$

$$.6 \leftarrow 10 \text{ sec}$$

$$.6 \leftarrow 15 \text{ sec}$$

$$1.8$$



$$\tan \theta = \frac{2.6}{2}$$

$$\theta = \tan^{-1} \left( \frac{2.6}{2} \right)$$

$$\boxed{\theta = 52.4^\circ}$$