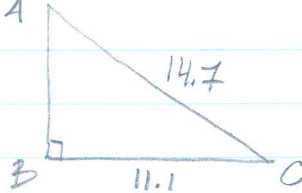
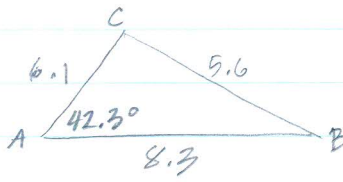
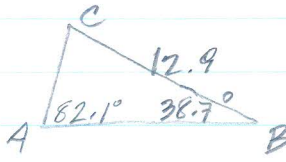


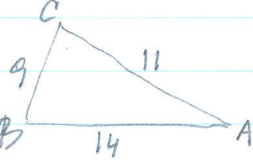
# Midterm Review - Triangle Trig

1)   $c^2 + 11.1^2 = 14.7^2$   $\sin A = \frac{11.1}{14.7}$   $C = 90^\circ - 49^\circ$   
 $c^2 = 92.88$   $A = \sin^{-1}(\frac{11.1}{14.7})$   $C = 41^\circ$   
 $C = 9.6$   $A = 49.0^\circ$

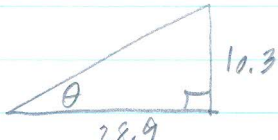
2)   $a^2 = 6.1^2 + 8.3^2 - 2(6.1)(8.3)\cos 42.3^\circ \rightarrow a = 5.6$   
 $\frac{\sin 42.3^\circ}{5.6} = \frac{\sin C}{8.3}$   $B = 180^\circ - 42.3^\circ - 85.9^\circ$   
 $C = 85.9^\circ$   $B = 51.8^\circ$

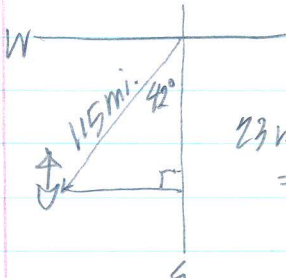
3)  $\text{Area} = \frac{1}{2}bc \sin A = \frac{1}{2}(6.1)(8.3)\sin 42.3^\circ = 17.0 \text{ units}^2$

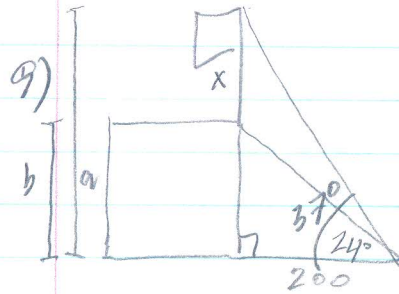
4)   $C = 59.2^\circ$   $\frac{12.9}{\sin 82.1^\circ} = \frac{b}{\sin 38.7^\circ} = \frac{c}{\sin 59.2^\circ}$   
 $b = 8.1$   $c = 11.2$

5)   $14^2 = 9^2 + 11^2 - 2(9)(11)\cos C$   $\frac{\sin 88.3^\circ}{14} = \frac{\sin B}{11}$   
 $\cos C = \frac{14^2 - 9^2 - 11^2}{-2 \cdot 9 \cdot 11}$   $B = 51.8^\circ$   
 $C = 88.3^\circ$   $A = 39.9^\circ$

6)  $\text{Area} = \sqrt{s(s-a)(s-b)(s-c)} = \sqrt{17(8)(6)(3)} = 49.5 \text{ units}^2$   
 $s = 17$

7)   $\tan \theta = \frac{10.3}{28.9} \rightarrow \theta = \tan^{-1}(\frac{10.3}{28.9}) = 19.6^\circ$

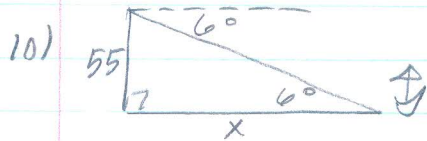
8)   $\cos 42^\circ = \frac{s}{115}$   $\sin 42^\circ = \frac{w}{115}$   
 $s = 85.5 \text{ miles}$   $w = 77.0 \text{ miles}$   
 23 mph · 5 hr = 115 mi



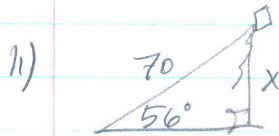
$$\tan 37^\circ = \frac{a}{200} \quad \tan 24^\circ = \frac{b}{200}$$

$$a = 150.71 \quad b = 89.05$$

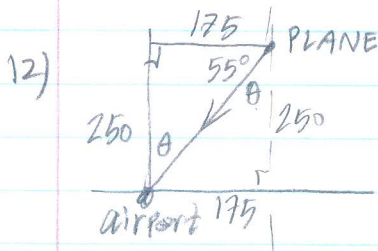
$$x = a - b = \boxed{61.7 \text{ ft.}}$$



$$\tan 6^\circ = \frac{55}{x} \rightarrow x = \frac{55}{\tan 6^\circ} = \boxed{523.3 \text{ ft.}}$$



$$\sin 56^\circ = \frac{x}{70} \rightarrow x = \boxed{58 \text{ feet}}$$

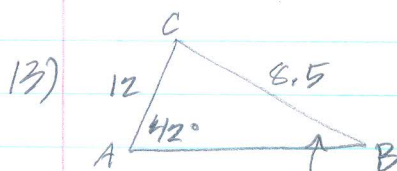


$$\tan \theta = \frac{175}{250}$$

$$\text{S } 35^\circ \text{ W}$$

$$\text{OR W } 55^\circ \text{ S}$$

$$\theta = 35^\circ$$



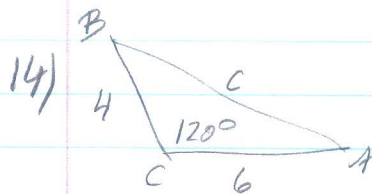
$$\frac{\sin 42^\circ}{8.5} = \frac{\sin B}{12}$$

$$\frac{8.5}{\sin 42^\circ} = \frac{c}{\sin 67.2^\circ}$$

$$\boxed{B_1 = 70.8^\circ \quad C_1 = 67.2^\circ \quad c_1 = 11.7}$$

bigger than A!

$$\boxed{B_2 = 109.2^\circ \quad B_2 = 28.8^\circ \quad C_2 = 6.1}$$



$$c^2 = 4^2 + 6^2 - 2(4)(6)\cos 120^\circ \rightarrow \boxed{c = 8.7}$$

$$\frac{\sin 120^\circ}{8.7} = \frac{\sin A}{4}$$

$$\boxed{A = 23.5^\circ}$$

$$\boxed{B = 36.5^\circ}$$

15)

$$70^2 = 55^2 + 34^2 - 2(55)(34)\cos C$$

$$\boxed{C = 101.1^\circ}$$

$$\frac{\sin 101.1^\circ}{70} = \frac{\sin B}{34}$$

$$\boxed{B = 28.5^\circ}$$

$$\boxed{A = 50.4^\circ}$$

16)

$$c^2 = 6.25^2 + 2.15^2 - 2(6.25)(2.15)\cos 15 \rightarrow \boxed{c = 4.2}$$

$$\frac{\sin 15^\circ}{4.2} = \frac{\sin B}{2.15}$$

$$\boxed{B = 7.6^\circ}$$

$$\boxed{A = 157.4^\circ}$$

17.  $\sin 25^\circ = 0.4226$

18.  $\cos 65^\circ = 0.4226$

19.  $\cot 71.5^\circ = 0.3346$

20.  $\sec 42^\circ 12' = 1.3499$

21.  $\cos 8^\circ 50' 25'' = 0.9887$

degree mode!

22.  $\tan \frac{\pi}{6} = 0.1989$

23.  $\csc 1.25 = 1.0538$

24.  $\csc \theta = \text{undefined}$

radian mode!

25.  $\sin \theta = 0.8191$

$\theta = \sin^{-1}(0.8191) = 54.99^\circ$

26.  $\theta = \cos^{-1}(0.9848) = 10.00^\circ$

27.  $\theta = \tan^{-1}(1.1920) = 50.01^\circ$

28.  $\theta = \cos^{-1}(1/1.4123) = 44.92^\circ$

29.  $\theta = \cos^{-1}(0.4223) = 65^\circ 1'$

30.  $\theta = \tan^{-1}(1.5002) = 56^\circ 19'$  (round up!)

31.  $\theta = \sin^{-1}(1/1.5555) = 40^\circ 0'$

32.  $\theta = \tan^{-1}(1/2.1234) = 25^\circ 13'$

degree mode!