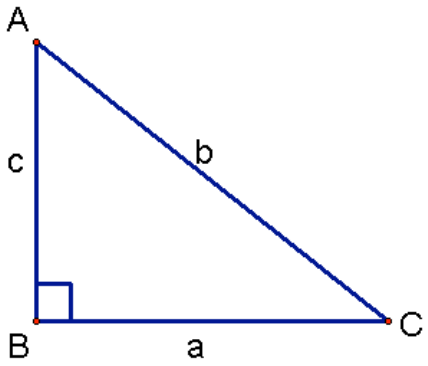
**Pre-Calculus** **Review Quiz #7** Name_____ Pd_____
Chapter: 5-4 to 5-8

**Topic 1: Right triangle Trigonometry – use the following diagram to solve the following triangles:**

1. a = 4, C = 50

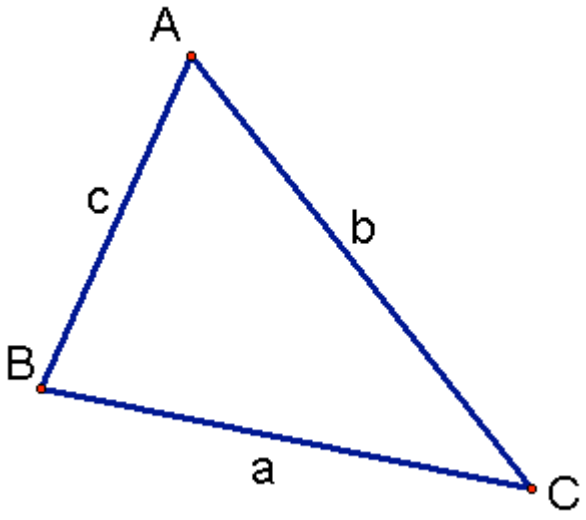



2. b = 10, A = 38

3. a = 7, b = 8

**Topic 2: Non-Right triangle Trig** – use the following diagram to solve the following triangles:

4. a = 4, A = 33, C = 62




5. b = 10, A = 38, c = 13

6. a = 7, b = 8, c = 9

**Topic 3: Applications**

7. A 30 ft flagpole snaps due to the wind 8 ft above the ground. The top of the flagpole falls to the ground such that the flagpole now forms a right triangle with the ground. How far is the tip of the pole from the base and what is the greatest acute angle in the triangle?

8. A hot air balloon measures the angle to a 7-11 and a K-mart. The angle to the 7-11 to 25 degrees and the angle to the K-mart is 40 degrees. If the distance between the 7-11 and the K-mart is 1.3 miles, then how high above the ground is the balloon?

9. A tank fires a shell 100 meters at an enemy bunker. Then the tank cannon rotates 11 degrees and fires a shell 130 meters at an enemy helicopter that is on the ground. How far apart are the bunker and the helicopter?

**ACT/SAT Problems**

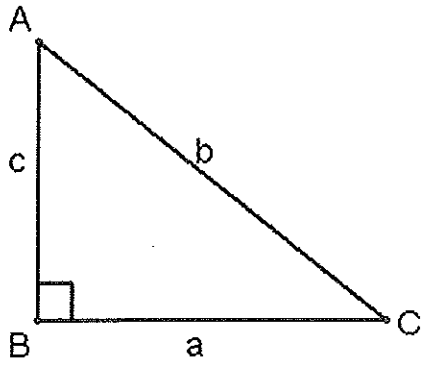
10. The number n is 16 less than 2k, and k is 2 more than n. What is the value of n?

11. For all numbers a and b, let the operation \$ be defined by a \$ b = $b^2 + ab$. What is the value of (a\$b)\$c

12. If $8\sqrt{8} = x\sqrt{y}$ and x and y are different positive integers, what is one possible value of x + y?

**Pre-Calculus** **Review Quiz #7** Name Key Pd____
Chapter: 5-4 to 5-8

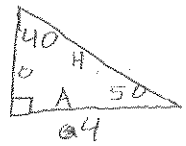
**Topic 1: Right triangle Trigonometry – use the following right triangle to solve the following triangles:**




1. a = 4, C = 50

$\tan 50 = \frac{O}{4}$ $O_{(c)} = 4.8$

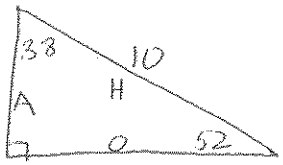
$\frac{\cos 50}{1} = \frac{4}{H}$ $H_{(b)} = 6.2$



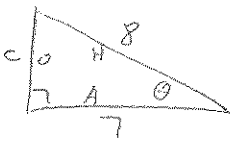

2. b = 10, A = 38

$\sin 38 = \frac{O}{10}$ $Opp = 6.16$

$\cos 38 = \frac{A}{10}$ $Adj = 7.9$




3. a = 7, b = 8




$8^2 = 7^2 + c^2$

$64 = 49 + c^2$

$15 = c^2$

$c = \sqrt{15}$

$\cos\theta = \frac{A}{H} = \frac{7}{8}$

$\theta = \cos^{-1}(7/8)$

$\theta = 29°$

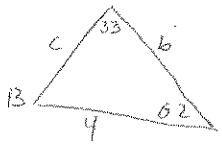
$C = 29°$

$A = 61°$

**Topic 2: Non-Right triangle Trig** – use the following right triangle to solve the following triangles:

4. a = 4, A = 33, C = 62

$\angle B = 85$




$\frac{4}{\sin 33} = \frac{c}{\sin 62}$ $c = 6.48$

$\frac{4}{\sin 33} = \frac{b}{\sin 85}$ $b = 7.32$

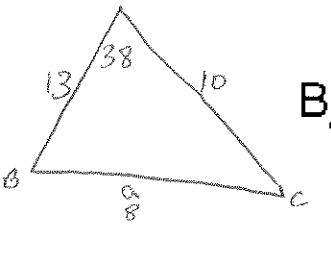
5. b = 10, A = 38, c = 13

$a^2 = 10^2 + 13^2 - 2(10)(13)\cos 38$

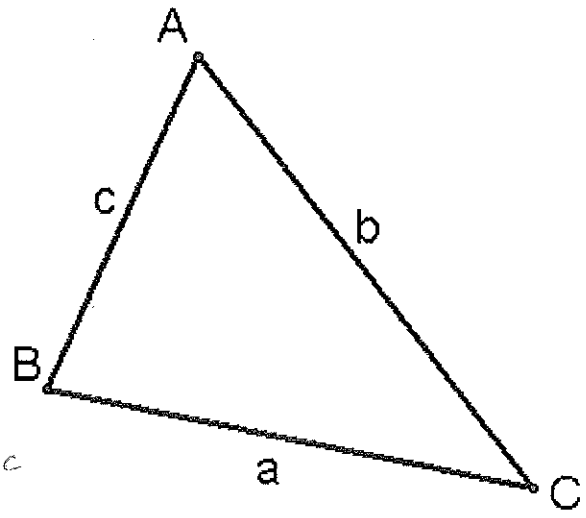
$a^2 = 64.1$ $a = 8$

$\frac{8}{\sin 38} = \frac{13}{\sin C}$

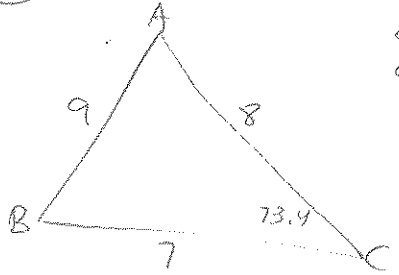
$\sin C = 1$ $C = 90$




$\angle B = 52$




6. a = 7, b = 8, c = 9




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

$9^2 = 7^2 + 8^2 - 2(7)(8)\cos C$

$-32 = -112\cos C$

$.286 = \cos C$

$C = \cos^{-1}(.286)$

$\angle C = 73.4$

$\frac{9}{\sin 73.4} = \frac{8}{\sin B}$

$\sin B = .852$

$B = \sin^{-1}(.852)$

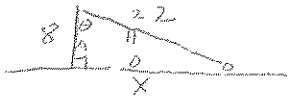
$\angle B = 58.4$

$A = 48.2$

**Topic 3: Applications**

7. A 30 ft flagpole snaps due to the wind 8 ft above the ground. The top of the flagpole falls to the ground such that the flagpole now forms a right triangle with the ground. How far is the tip of the pole from the base and what is the greatest acute angle in the triangle?

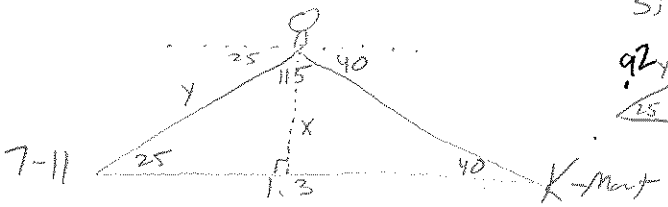
$x^2 + 8^2 = 22^2$ $\quad x = 20.5$ $\quad \cos\theta = \frac{8}{22}$ $\quad \theta = 68.7$ Finish




8. A hot air balloon measures the angle to a 7-11 and a K-mart. The angle to the 7-11 to 25 degrees and the angle to the K-mart is 40 degrees. If the distance between the 7-11 and the K-mart is 1.3 miles, then how high above the ground is the balloon?

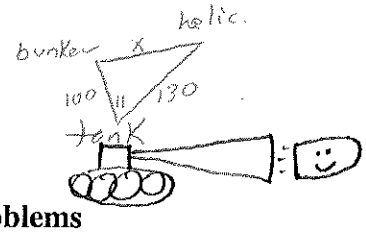
$\frac{1.3}{\sin 115} = \frac{y}{\sin 40}$ $\quad y = .92$

$\sin 25 = \frac{x}{.92}$ $\quad x = .39$




9. A tank fires a shell 100 meters at an enemy bunker. Then the tank cannon rotates 11 degrees and fires a shell 130 meters at an enemy helicopter that is on the ground. How far apart are the bunker and the cannon?

$x^2 = 100^2 + 130^2 - 2(100)(130)\cos 11$ $\quad x^2 = 1378$ $\quad x = 37$




**ACT/SAT Problems**

10. The number n is 16 less than 2k, and k is 2 more than n. What is the value of n?

$n = 2K - 16$ $\quad K = n + 2$ $\quad n = 2(n+2) - 16$ $\quad n = 2n - 12$ $\quad -n = -12$ $\quad n = 12$ $\quad K = 14$

11. For all numbers a and b, let the operation \$ be defined by $a \$ b = b^2 + ab$. What is the value of (a\$b)\$c

$(b^2 + ab)\$c = c^2 + c(b^2 + ab)$

12. If $8\sqrt{8} = x\sqrt{y}$ and x and y are different positive integers, what is one possible value of x + y?

$\frac{8\sqrt{8}}{x} = \sqrt{y}$ $\quad \left(\frac{8\sqrt{8}}{x}\right)^2 = y$ — use table function on calc. looking for integers

Notebook Check:

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Homework Check:

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