NAME: _____

ALGEBRA II HONORS SUMMER ASSIGNMENT

STUDENTS WHO ARE ENTERING ALGEBRA II HONORS FOR THE 2009-2010 SCHOOL YEAR MUST COMPLETE THIS ASSIGNMENT. THIS ASSIGNMENT IS DUE AT THE BEGINNING OF THE PERIOD ON THE FIRST DAY OF CLASS. THERE WILL BE A TEST ON PARTS 1 - 9 ON THE SECOND DAY OF CLASS.

IN ORDER TO RECEIVE ANY CREDIT, YOU MUST SHOW ALL WORK ON SEPARATE PAPER IN PENCIL!!! Your work must also be neat and organized. All graphs must be completed on graph paper, have axes and a scale, and lines must be graphed using a ruler.

Part 1:

Compact Disc Activity: **You are planning to purchase CDs from a music club. The following information is given:**

Club A: **Cost of each CD: $15.95**
No membership Fee

Club B: **Cost of each CD: $13.95**
Membership Fee: $22 per year

a) On a piece of graph paper, graph each set of information on the same coordinate graph.

b) Determine the linear equation for each club.

Club A:_____

Club B:_____

3) How many CDs can you purchase from Club B without exceeding $130.00?

4) If you expect to buy 1 CD per month for the year, which CD club would be more economical?

5) In one year, at what point (# of CDs) does it become more economical to switch from one club to the other? Justify the answer.

6) Change the cost per CD in Club A to $16.95. If you plan to purchase 14 CDs in a year, how much will you save if you were to join Club B rather then Club A?

7) For Club A and Club B, indicate the slope and y-intercept. What does the slope and y – intercept represent in this problem?

Part 2:
Equation Review: Solve the following equations without the use of a calculator. You will be responsible to solve equations throughout the year without access to a calculator. Please show all steps and leave your answers in terms of a fraction.

a) $\frac{1}{4}x - 10 = \frac{-127}{12} + \frac{1}{3}x$

b) $2(4x-2) = \frac{2}{3}(9-48x)$

c) $\frac{x-2}{15} = \frac{x+2}{6}$

d) $0.2 - 0.3x = 1.2x - 1$

e) $8\left(\frac{3}{4}x + 2\frac{1}{-}\right) = 5x$

f) $\frac{4}{5}x - 1 = \frac{4}{5}x + 5$

g) $2(4x-2) = \frac{2}{3}(9-48x)$

h) $12x - (6+8x) = \frac{1}{2}(8x-12)$

i) What could I multiply the following equation by to eliminate the decimals? Solve the equation: $0.34x - 1 + 5.04x = 7.234 + 5x$.

j) What could I multiply the equation below by to eliminate the fractions? Solve the equation: $\frac{x+7}{3} + 2 = \frac{3x-5}{6}$.

Part 3:
Order of Operation Review: Simplify the following expressions.

a) $-3^2 - 2(3-5) - (-3)(-2) + (-1)^8$

b) $\frac{-2(3-5)^2 + 6}{-3(6) \div 2}$

c) $5 - 2(3-6) - 4 \div 2(2) - 3(-2)$

d) $2\left(-3(2-5)^2 - 2\left|-3-1\right|\right)$

Part 4:
Evaluate the following expressions, given a = 2, b = -2, and c = -3.

a) $abc - a(b-c)$

b) $-a^2 - b^2 - 2c$

c) $\frac{\sqrt{2a} - 2b - c}{|abc|}$

d) $\frac{a^2b^2 + 2}{a^2b^2 - 1}$

Part 5:
Simplify the following radicals.

a) $\sqrt{81}$ b) $\sqrt{48}$ c) $\sqrt{72}$

Part 6:
Factoring: Factor the following expressions.

a) $7x^2 - 21x$ b) $x^2 + 7x + 10$ c) $t^2 - 5t - 24$ d) $x^2 + 8x - 20$

e) $3y^2 - y - 2$ f) $9x^2 - 16$ g) $4a^2 + 4a + 1$ h) $4x^2 - 10x - 50$

Part 7:
Simplifying: Simplify the following expressions.

a) $-2(3x-4)^2 + 5x$ b) $(2x-3)^2$ c) $(3x+1)(3x-1)(x-2)$

Part 8:
Literal Equations

a) Solve for w: $P = 2l + 2w$ b) Solve for h: $V = \frac{1}{3}Ah$

c) Solve for C: $F = \frac{9}{5}C + 32$ d) Solve for m: $y = mx + b$

Solve each of the following equations for y.

e) $6x + 3y = 12$ f) $5x - \frac{2}{3}y = 1$ g) $x = \frac{3}{5}(y + 7)$

h) $x = y + z - 2yz$ i) $\frac{1}{2}x - \frac{1}{4}y = 0$ j) $\frac{x}{4} = \frac{2y}{3}$

Part 9:

Fraction Review: If $a = 3\frac{1}{3}$ and $b = \frac{4}{5}$, simplify the following. All answers should be in fraction form.

a) $a + b$ b) $a - b$ c) ab d) $\frac{a}{b}$ e) $\frac{b}{a}$

Part 10:

Graphing Calculator Review: Complete the following using your graphing calculator:

- ✧ Graph an equation of a line (make sure you can set the window so that what you graph fits on your screen) Ex. $y = \frac{1}{2}x + 12$
- ✧ Graph a quadratic equation….(ex. $y = X^2 - 4$) then use 2^{nd} TRACE and explore what you learn from using choices 1-3
- ✧ Enter a linear equation into the Y= screen Enter the equation in Y_1 . Then hit 2^{nd} WINDOW this takes you to TBLSET….enter a value you want your table to start (maybe 0) and Δ Tbl simply means for you to enter the change you want the table to increase…for example, if you want to go by 1's enter 1, for 2's enter 2, etc. Leave Indpnt and Depend highlighted on AUTO. Now hit 2^{nd} GRAPH. You now have a table of values that fall on the equation you entered in Y_1

A. Graph the following on your graphing calculator. If you do not have a graphing calculator, you can also use Excel and graph them.
   1. $y = 5 - 2x$
   2. $y = 8 - 2x$
   3. $y = 2x$
   4. $y = -2x - 3$
   5. $y = -4 - 2x$

   From the graphs, tell which of the equation has the greatest value for y when $x = -5$

B. Graph the equation $y = 0.3x + 1.5$ on your calculator. Then find the x-intercept to the nearest hundredth.

C. Solve this equation using a graphing calculator. $5.5x + 0.3(4 - x) = 7.2x - 3$

D. Solve these systems using a graphing calculator:

1. $y = 3x + 2$
   $y = -3x - 2$
2. $x + 2y = 8$
   $y = \frac{1}{2}x - 2$
3. $3x - 2y = -22$
   $x + 2y = 6$

E. Graph each system of linear inequalities. Sketch graphs on separate graph paper.

1. $y \le 3x + 1$
   $y \ge -x$

2. $x + y > 2$
   $2x - 3y < 1$

3. $y > 4x - 2$
   $y \ge -1$