

NAME: \_\_\_\_\_

### ALGEBRA II HONORS SUMMER ASSIGNMENT

Welcome to Honors Algebra 2! You are required to complete this assignment over the summer. **It is due on the first day of class.** THERE WILL BE A TEST ON PARTS 1 - 10 ON THE SECOND DAY OF CLASS. Part 11 of this assignment **requires a graphing calculator.** Please note that it is recommended that you purchase a TI-84+ graphing calculator for home use. Please see Ms. S. Zielinski, Math Department Supervisor, if you need to borrow one from the school due to financial circumstances. You are responsible to know all of the calculator skills covered by this assignment.

**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. **Do not do this assignment with a tutor.** It is supposed to be **YOUR** work.

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

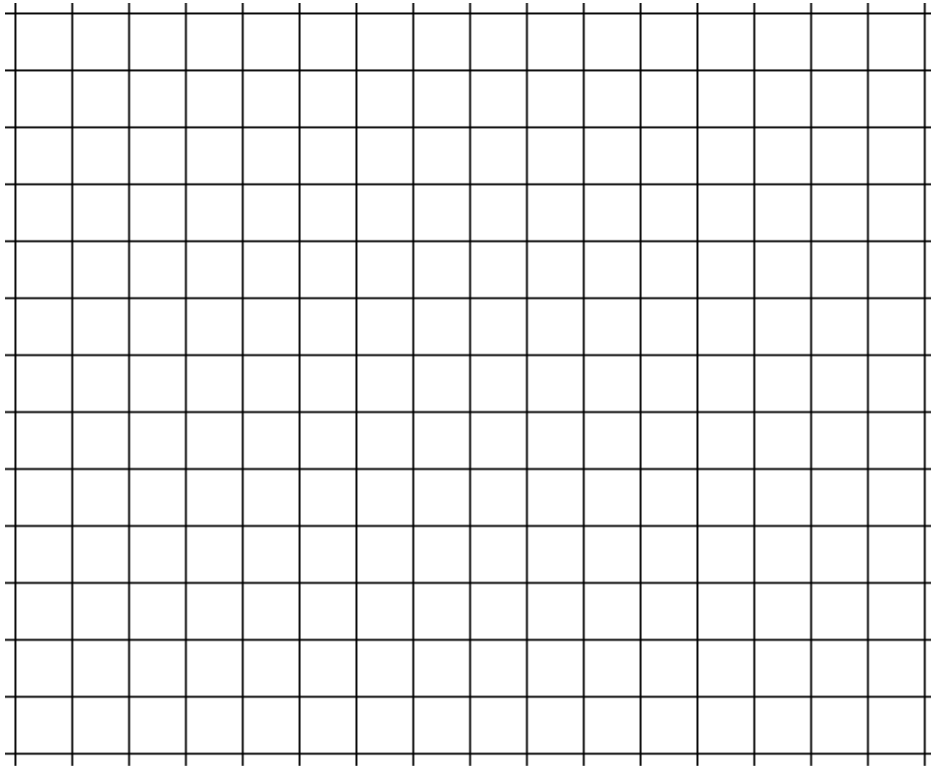
Membership Fee: \$22 per year

- a) On a piece of graph paper, (attached) 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 than 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?

Graph for Part 1:



**8) 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 on separate paper 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)  $8\left(\frac{3}{4}x + 2\frac{1}{2}\right) = 5x$

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

g)  $-4x - 4 = 3(2 - x)$

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)  $2(-3(2-5)^2 - 2|-3-1|)$

**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: Equations of Lines and Inequalities in 2 Variables Review**

**1. Find the slope of the line containing the points and write an equation of the line containing the points:**

a) (9,1), (-5,2) Slope: \_\_\_\_\_ Equation: \_\_\_\_\_

b) (6,5), (-2,5) Slope: \_\_\_\_\_ Equation: \_\_\_\_\_

c) (2,5), (4,8) Slope: \_\_\_\_\_ Equation: \_\_\_\_\_

d) (6,3), (6,-1) Slope: \_\_\_\_\_ Equation: \_\_\_\_\_

**2. Write each equation in slope-intercept form:**

a)  $2x - 10y = 15$

b)  $x - y = 2x + 3y + 9$

c)  $-2x = 24 - 8y$

**3. Graph the following equations and inequalities on attached graph paper:**

a)  $2x - 4y = 12$

b)  $3x - 2y > 4$

c)  $y < 2x + 1$

d)  $y = -\frac{2}{3}x - 4$

e)  $x \geq -2$

f)  $y = -3x$

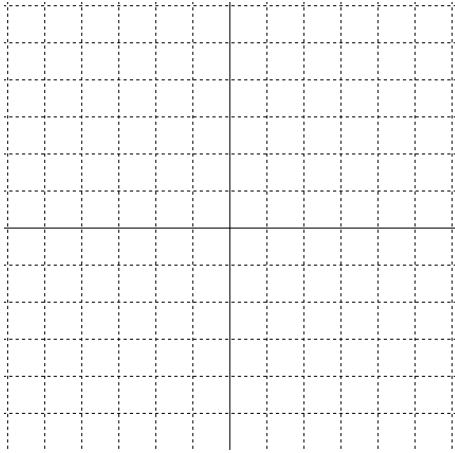
**Part 11:**

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

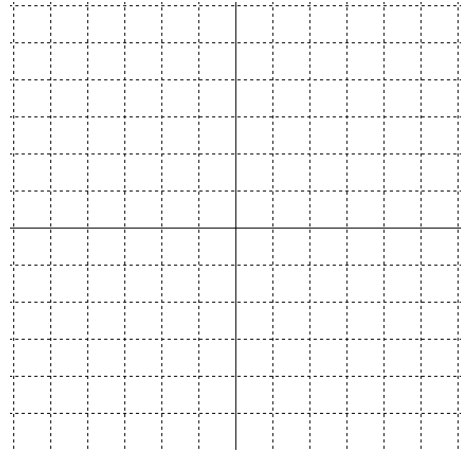
Go to the website: <http://mathbits.com/MathBits/TISection/CachingPage.html> and follow the instructions for **TI-84+ Caching**. Print out the Worksheet and complete all boxes. When you are done, print out the certificate, and attach it your assignment. **You are responsible to know all of the skills covered in the Cache.**

**Coordinate Planes for Part 10, Problem 3.**

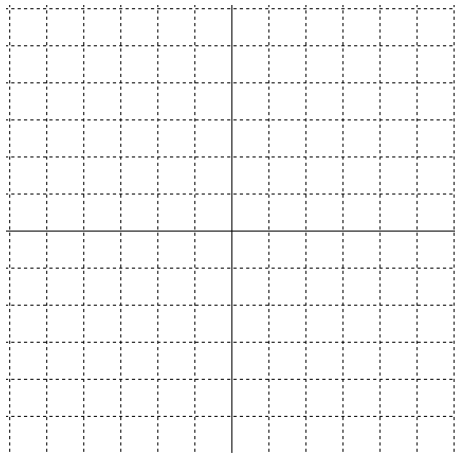
**a.**



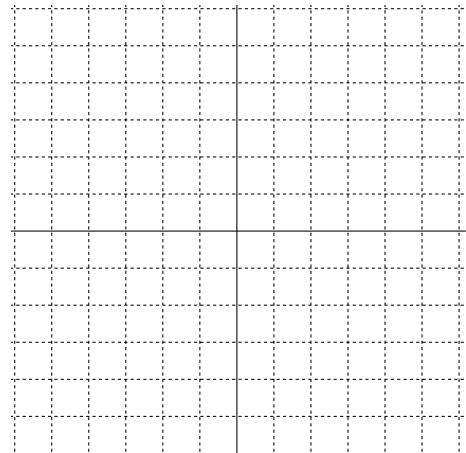
**b.**



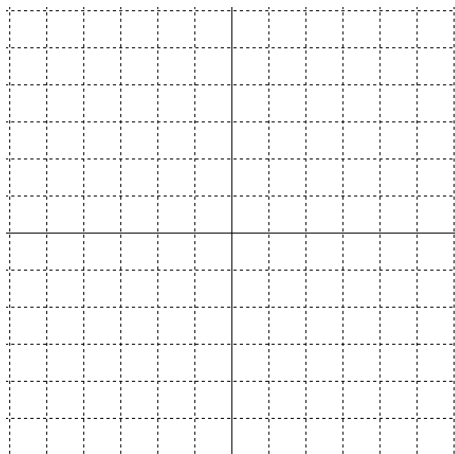
**c.**



**d.**



**e.**



**f.**

