Algebra 2: CP1/CP2
MA 301/302
Summer Packet

This packet contains problems which is a review of Algebra 1 topics necessary for Algebra 2. You may use your calculator to complete the problems. This packet will not be collected but you will earn a homework grade for its completion. On the 1st full day of class, we will go over the packet. On the 2nd full day of class, you will have a test on this material. This will be your first grade for the semester. You should use an algebra 1 text or google it. Khan Academy or Freckle are helpful sites.

NAME: _____

Answer the following questions. Show your work. Answers should be in simplest fraction form, unless it is the answer is money. Don't forget to include units where appropriate.

    A. Write the **algebraic model** for the following verbal models:
        1) The sum of 12 and the quantity 8 times a number is equal to 48.

        2) The difference of a number and 7 is greater than 10 and less than or equal to 20.

    B. Check whether the given numbers are **solutions** to the functions.

        3) $f(x) = 6x - 7 = 29$; 5

        4) $g(x) = x - 3.5 < 6$; 9

    C. **Problem Solving**: Write the equation or inequality that you use to solve the problem.
        5) You buy a storage rack that holds 40 DVDs. You already have 27 DVDs. You want to buy 15 more DVDs. Will they fit on the rack?

        6) You are comparing two dorm-sized refrigerators, both with cube-shaped interiors. One model has an interior edge of 14 inches and the other has an interior edge of 16 inches. How much more cubic inches does the larger model have?

        7) Each of the long sides of a rectangle has a length of x inches. Each of the other sides is 1 inch shorter than the long sides. The perimeter of the rectangle is 22 inches. Determine the length & width of the rectangle. Determine the area of the rectangle.

                L = _____   w = _____

                A = _____

        8) You are making a scale drawing of your classroom using the scale 1 in : 3 ft. The floor of your classroom is a rectangle with a length of 21 ft and a width of 18 ft. What should the length and width of the floor in your drawing be?

                L = _____   w = _____
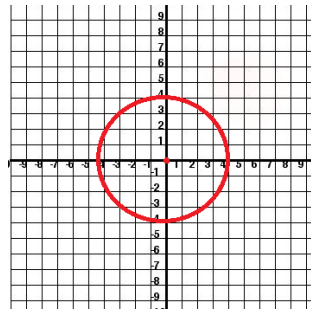
D. **Functions:** Determine whether the following are functions, explain your answer.
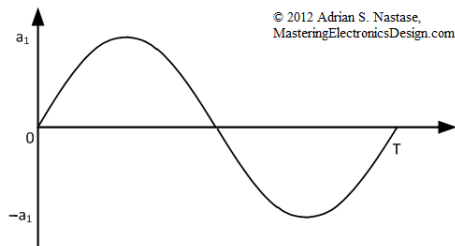   9) (2, 5), (4, 8), (3, 9)

10)

x	1	5	7	9	13
y	5	13	19	27	35

11) _____

12) _____
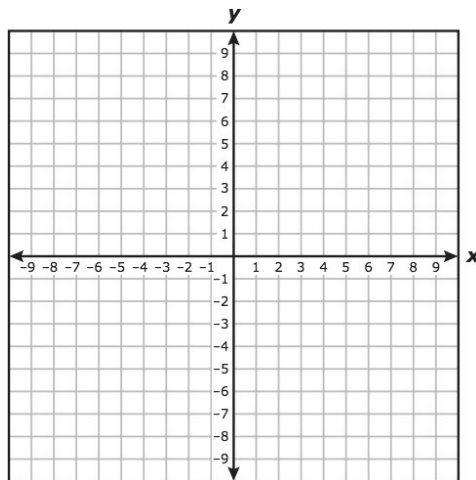

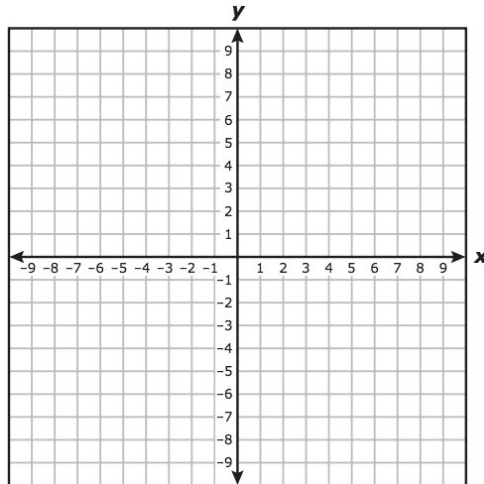© 2012 Adrian S. Nastase,
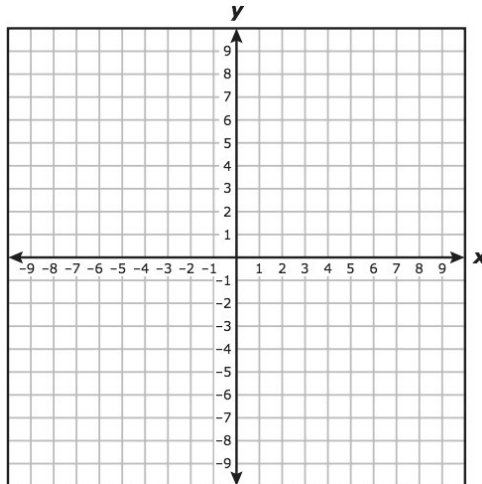MasteringElectronicsDesign.com

E. **Linear Equations/Inequalities.**
   13) Graph y = x + 2

14) Graph $y = \frac{-1}{2}x + 4$

15) Graph $6x + 2y = 8$

16) The table shows the cost of using a computer at an internet café for a given amount of time. Find the rate of change in cost with respect to time.

Time (hours)	2	4	6
Cost (dollars)	7	14	21

17) Find the slope of the line containing the points: (1, -3) and (6, 5)

18) What is the slope and intercept of the line: $y = -4x - 12$?

19) What is the slope and intercept of the line: $3x - 9y = 27$

20) Write the equation of the line in slope intercept form of the line passing through the points: (0, 5) and (6, 9)

21) Write the equation of the line in slope intercept, point-slope, and standard form for the line going through the points: (7, 4) & (5, 3).
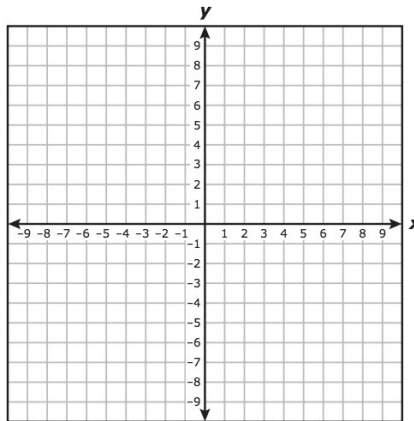
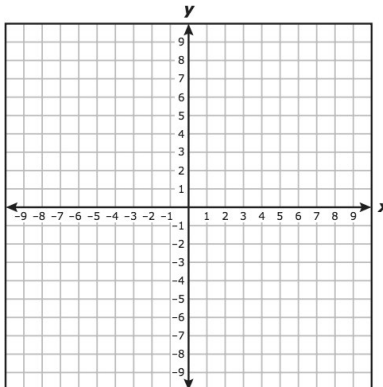Slope-intercept: _____

Point-slope: _____

Standard: _____

22) Write the equation of the line for the line that is parallel to $y = x + 3$ and goes through the points (9, 4).

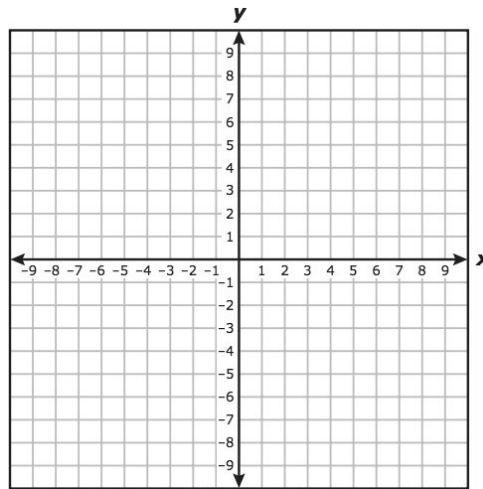23) Graph: $y < 2x + 5$

24) Graph $x \leq -3$

25) Graph

$y < 3x + 4$

$y \geq -2x - 1$

F. **Solve** the following equations/inequalities. Show your work. Graph the solution for inequalities.

23) $15x - 17 = 13$ x = _____

24) $-12x + 39 = -4x - 17$ x = _____

25) $3(3x + 4) = 54 + 6x$ x = _____

26) $\frac{1}{3}(24x - 66) = 3x + 43$ x = _____

27) $\frac{-5x}{4} = \frac{15}{2}$ x = _____

28) $\frac{34}{6} = \frac{2x+1}{3}$ x = _____

29) $\frac{-4x-1}{-10x} = \frac{3}{8}$ x = _____

30) $5x + 9 < 4$ _____

31) $3(s - 4) \geq 2(s - 6)$ _____

32) $2(4c - 7) \geq 8(c - 3)$ _____

33) $2.2h + 0.4 \leq 2(1.1h - 0.1)$ _____

34) $6 < x + 5 \leq 11$ _____

35) $16 < -x - 6$ or $2x + 5 \geq 11$ _____

36) $|x - 3| = 8$ _____

37) $3|2x - 7| - 5 = 4$ _____

38) $|x - 5| \geq 7$ _____

39) $2 \left|\frac{1}{4}x - 5\right| - 4 > 3$ _____

40) $y = -x + 4$ _____
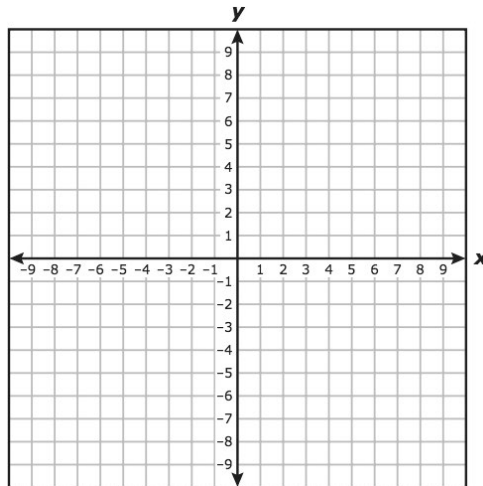 $y = 2x - 8$

41) $6x + 12y = -6$ _____
   $2x + 5y = 0$

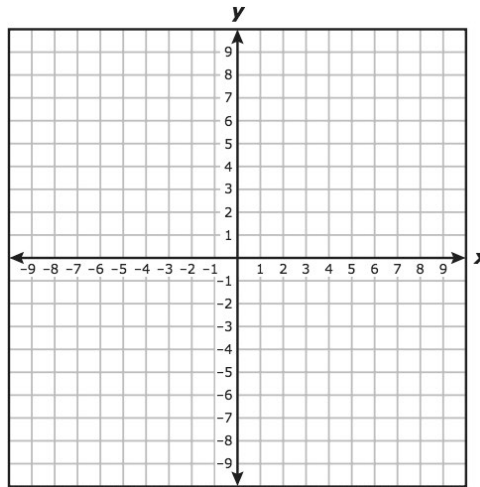42) $y = -6x - 2$ _____
   $12x + 2y = -6$

43) $4x + 3y = 27$ _____
   $4x - 3y = -27$

G. Graph Quadratics.

44) Graph: $y = x^2 + 5$

45) Graph: $x^2 - 2x = 3$

H. Factor/Solve Quadratics

46) Solve: $2x^2 = 8$ _____

47) Solve by factoring: $2x^2 + 8x = 0$ _____

48) Use the vertical motion model ($h = -16t^2 + vt + s$) to solve: A startled armadillo jumps straight into the air with an initial velocity of 14 feet per second. After how many seconds does it land on the ground?

$t =$ _____

49) Factor and solve: $x^2 + 3x + 2 = 0$ _____

50) Use the quadratic formula to solve: $2x^2 + 9x + 7 = 3$ _____