

Algebra 2 Summer Packet

June 2011

Attn: 2011-2012 Algebra 2 Students & Parents

The attached Algebra 2 Summer Review Packet contains necessary review of Algebra 1 topics to be adequately prepared for Algebra 2. These skills should have been mastered over the previous years. Algebra 2 is a critical course and one of the best predictors of college success. It covers a broad range of mathematical concepts and requires disciplined effort. Mastery of the problem solving skills outlined in this packet are a critical baseline for your success.

Please answer the questions in this packet in the space provided. The packet will be due and an exam given within the first week of school.

Do NOT fake your way through this packet. Make sure you understand how to do the problems. If you are unsure of how to do these problems, work together with a friend or use one of the following websites for help: algebasics.com, purplemath.com, brightstorm.com, or other similar websites.

We look forward to working with you in Algebra 2 and remind you that success is built by the efforts you make everyday.

Thank you.

The Stamford High School Math Department

PS – A TI-83 or TI-84 graphing calculator is recommended for Algebra 2 and future math courses both at SHS and in college. You can check ebay or similar sites for discounted prices.

Summer Review Packet

Date _____ Period _____

Evaluate each expression using order of operations. (Do Not use a calculator)

1) $(-8 \cdot 2) \div -4 - 3$

2) $-5 + 3 - (2 - 5)$

3) $(11 - 6) \div (1 - 2)$

4) $-8 \div (-2 + 6) - -3$

5) $(-4 - -6) \div (-1 - (-6 - (2 - 5)))$

6) $(3 \cdot 2 + 6) \div (-3 - -3 - 6)$

Evaluate each using the values given.

7) $-6 + c - (6 + b)$; use $b = -4$, and $c = 5$

8) $x + (z^2)^2$; use $x = 6$, and $z = -1$

9) $y(z + y) + x$; use $x = 2$, $y = -4$, and $z = 1$

10) $n + 2 - (4 + m)$; use $m = -2$, and $n = -1$

Simplify each expression.

11) $1 - 7n + n + 3$

12) $5x - x$

13) $8(b - 9)$

14) $-2(10 + 6p)$

15) $-4x - 10(6x - 1)$

16) $6(-2 - x) + 4x$

Solve each equation.

17) $17 = a - (-13)$

18) $7 + n = 24$

19) $n + 4 = -6$

20) $60 = -5x$

21) $-4n + n = -18$

22) $7n - n = 18$

23) $-3(5 - 5m) = 45$

24) $7(p + 5) = -14$

25) $74 = -3 - 7(4x - 3)$

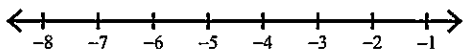
26) $-3(a + 4) - 4a = -5$

$$27) 3(n - 6) = -18 - 4n$$

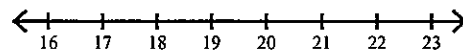
$$28) -8r + 36 = -7(1 - 5r)$$

Solve each inequality and graph its solution.

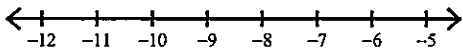
$$29) a + 8 < 5$$



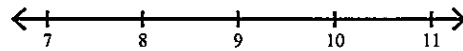
$$30) 20v \leq 400$$



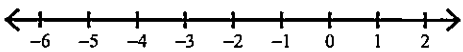
$$31) 13 + p < 4$$



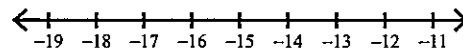
$$32) x - 20 \geq -11$$



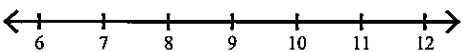
$$33) -11 > n - 8$$



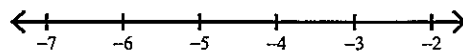
$$34) -13m < 208$$



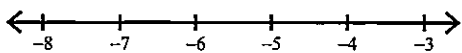
$$35) -8(r + 3) < -88$$



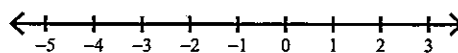
$$36) 10(-3 + x) > -70$$



$$37) 6(n + 7) \geq 6$$

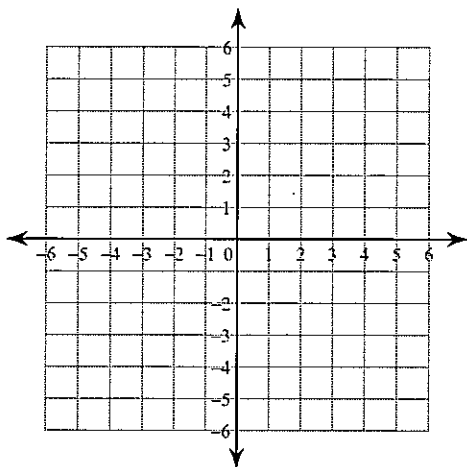


$$38) 7(1 + 6b) + 8b < 7$$

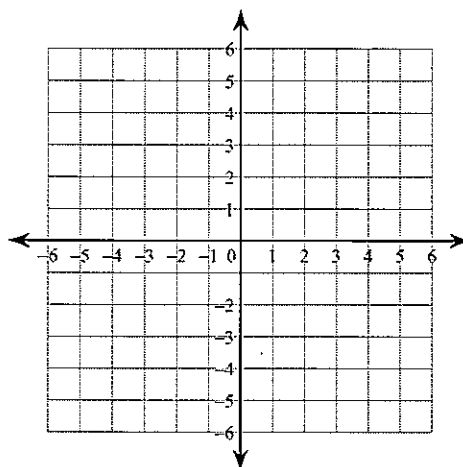


Sketch the graph of each line.

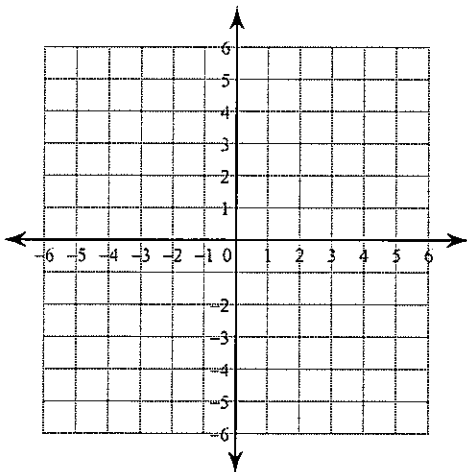
$$39) y = \frac{5}{4}x + 4$$



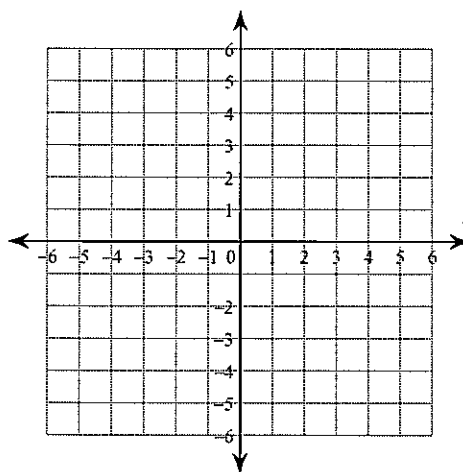
$$40) y = -\frac{2}{3}x + 2$$



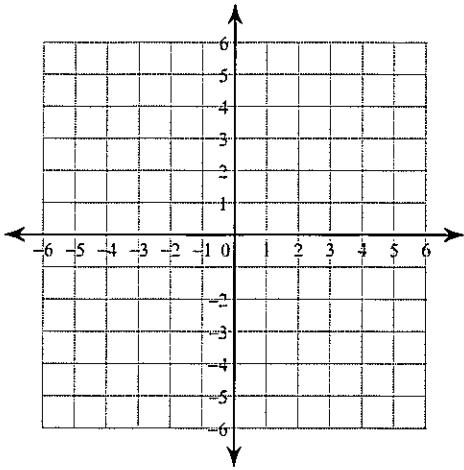
$$41) y = -4$$



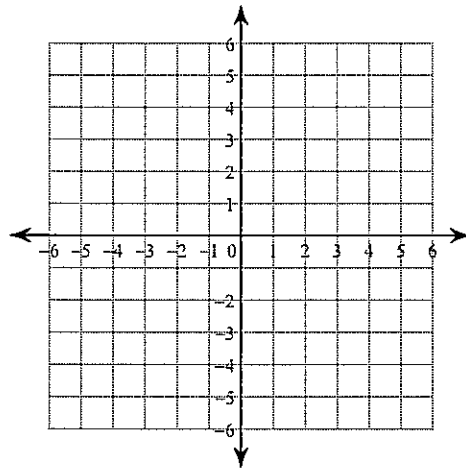
$$42) 5x - y = 5$$



43) $12 - 3y = -4x$

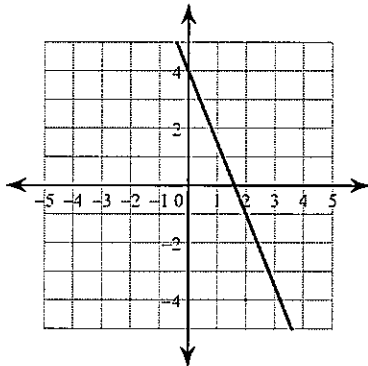


44) $x = -1$

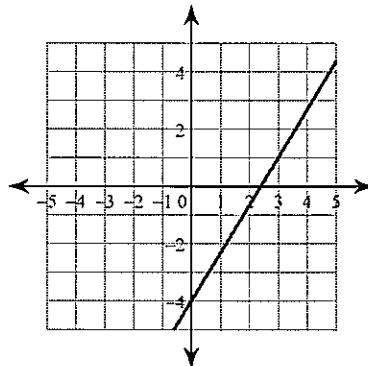


Write the slope-intercept form of the equation of each line.

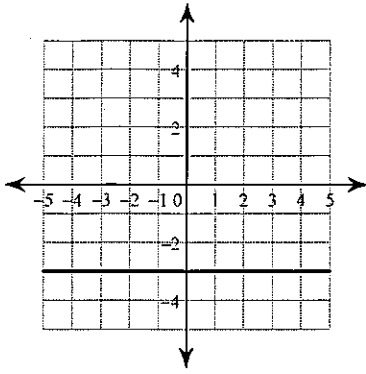
45)



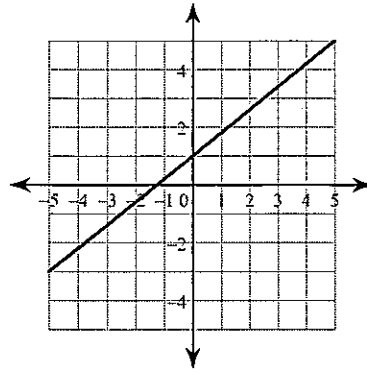
46)



47)



48)



Write the slope-intercept form of the equation of each line given the slope and y-intercept.

49) Slope = 2, y-intercept = -2

50) Slope = $-\frac{3}{5}$, y-intercept = 2

Write the slope-intercept form of the equation of the line through the given point with the given slope.

51) through: $(-3, 5)$, slope = -1

52) through: $(5, 0)$, slope = $-\frac{3}{5}$

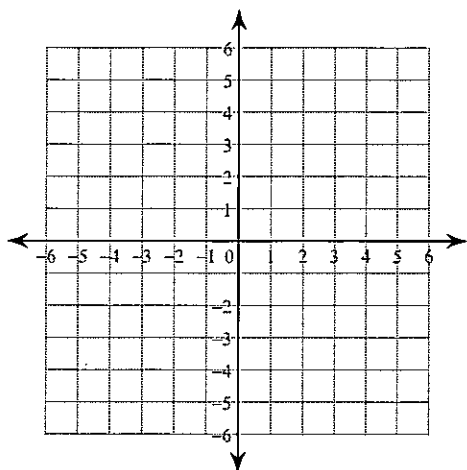
Write the slope-intercept form of the equation of the line through the given points.

53) through: $(-4, -2)$ and $(3, -1)$

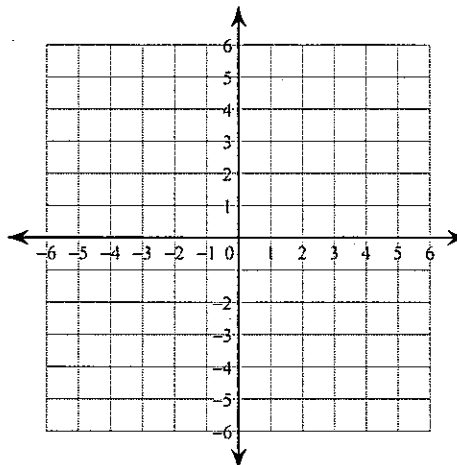
54) through: $(0, -2)$ and $(4, 4)$

Sketch the graph of each linear inequality. (Remember to shade)

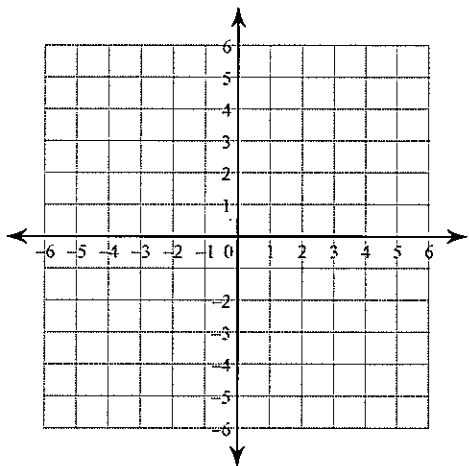
55) $y \geq \frac{3}{2}x - 4$



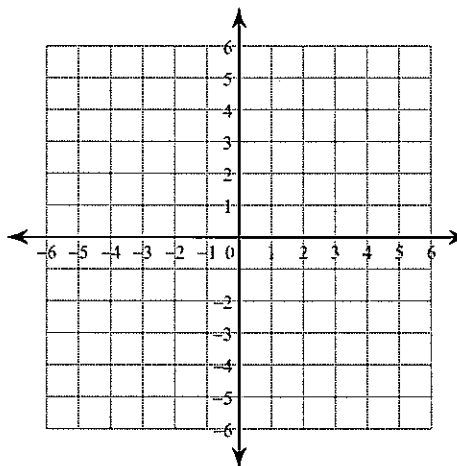
56) $y > -x - 4$



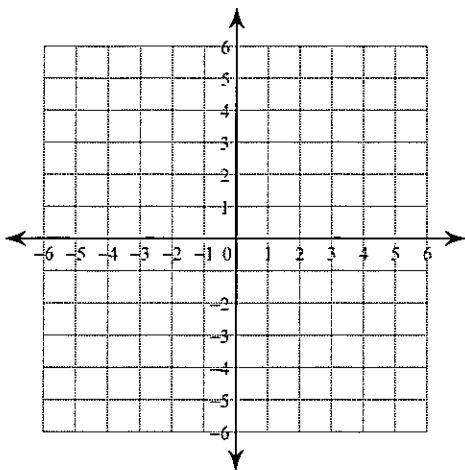
57) $6x - y \leq -2$



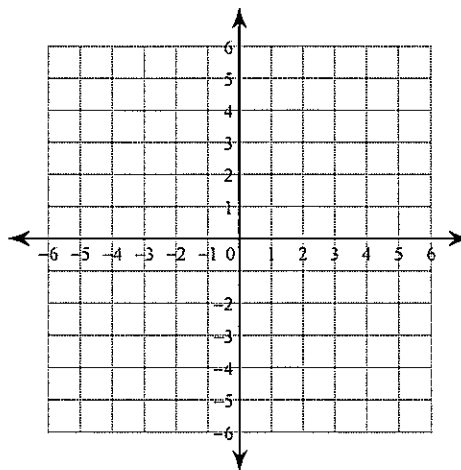
58) $5x + 3y > 0$



59) $y \leq -1$



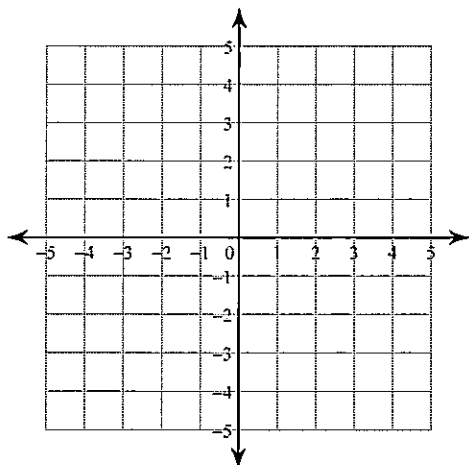
60) $x > 3$



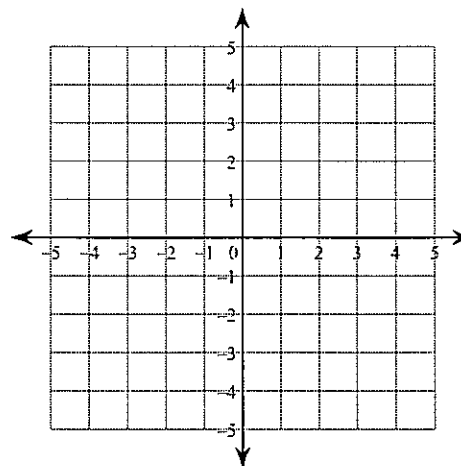
Solve each system by graphing. (Your answer should be an ordered pair in (x,y) form)

61) $y = -\frac{5}{4}x + 4$

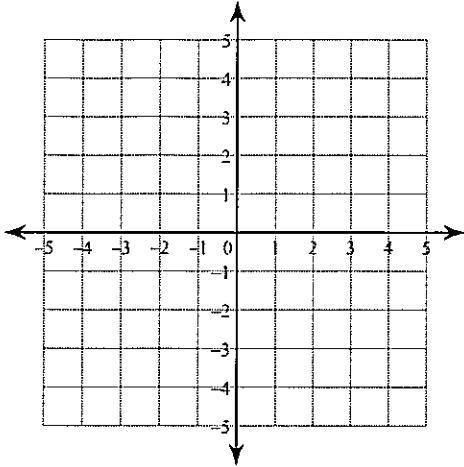
$y = \frac{1}{4}x - 2$



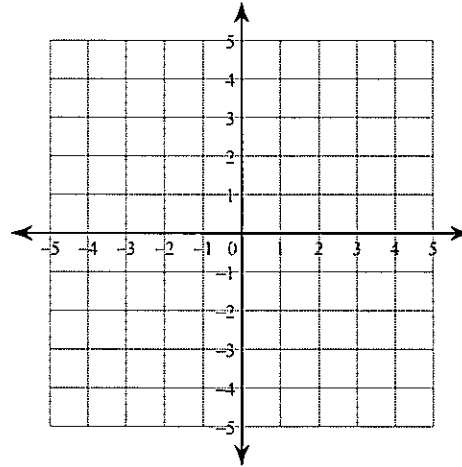
62) $y = -2x - 1$
 $y = 3$



$$63) \begin{aligned} -4y &= x + 16 \\ y - 1 &= x \end{aligned}$$



$$64) \begin{aligned} y + 1 &= -x \\ -8 + 4y &= -x \end{aligned}$$



Solve each system by substitution.

$$65) \begin{aligned} y &= -3x - 8 \\ 5x + 5y &= 0 \end{aligned}$$

$$66) \begin{aligned} y &= -3x + 5 \\ y &= 3x - 13 \end{aligned}$$

$$67) \begin{aligned} -3x - 3y &= -9 \\ 7x + y &= -15 \end{aligned}$$

$$68) \begin{aligned} -x + y &= -4 \\ -4x + 3y &= -8 \end{aligned}$$

Solve each system by elimination.

$$\begin{aligned} 69) \quad & -3x + 2y = 14 \\ & 2x - 2y = -6 \end{aligned}$$

$$\begin{aligned} 70) \quad & -5x - 6y = 10 \\ & -3x - 6y = 6 \end{aligned}$$

$$\begin{aligned} 71) \quad & 2x - 2y = -30 \\ & 4x + 4y = 20 \end{aligned}$$

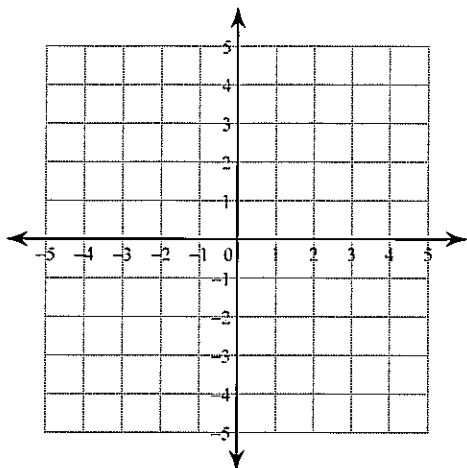
$$\begin{aligned} 72) \quad & -8x + 3y = -17 \\ & -6x + 4y = -4 \end{aligned}$$

Set up a system of equations, then solve.

- 73) The senior classes at High School A and High School B planned separate trips to the indoor climbing gym. The senior class at High School A rented and filled 2 vans and 3 buses with 105 students. High School B rented and filled 14 vans and 6 buses with 270 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?
- 74) Emily and Beth are selling flower bulbs for a school fundraiser. Customers can buy bags of windflower bulbs and packages of crocus bulbs. Emily sold 10 bags of windflower bulbs and 7 packages of crocus bulbs for a total of \$323. Beth sold 5 bags of windflower bulbs and 8 packages of crocus bulbs for a total of \$247. Find the cost each of one bag of windflower bulbs and one package of crocus bulbs.

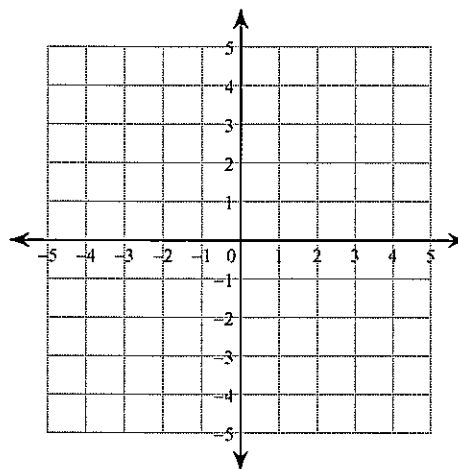
Sketch the solution to the system of inequalities. (Hint: Find the combined shaded region)

75) $y \geq -x - 2$
 $x < -3$



76) $y > -\frac{1}{3}x + 2$

$y < \frac{2}{3}x - 1$



Evaluate the following functions for the given value.

77) $f(x) = 2x + 3$
 $f(-1)$

78) $f(x) = x^2$
 $f(-4)$

79) $f(x) = \frac{1}{2}x - 9$
 $f(6)$

80) $f(x) = \frac{2}{3}x$
 $f(18)$