Algebra P3: Fall Final Review 2014 Name: KEY

Only use a calculator if the problem states that you can.

DAY 2

Find the x and y intercepts of each line, then graph. Be sure to write the intercepts as coordinates.

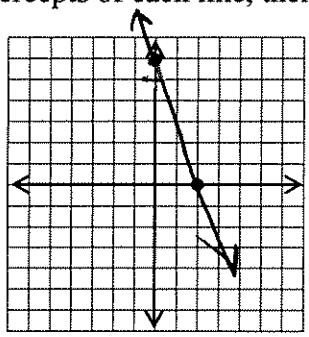
36. $3x+y=6$

x-int (2,0)

y=0

y-int (0,6)

x=0



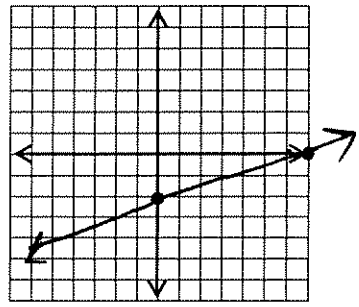
37. $2x-7y=14$

x-int (7,0)

y=0

y-int (0,-2)

x=0



Find the slope between the points:

38. (3, -4) and (-1, 7)

$\frac{7+4}{-1-3}=\frac{11}{-4}=\boxed{-\frac{11}{4}}$

39. (-9,3) and (-9, 7)

$\frac{7-3}{-9+9}=\frac{4}{0}=$ undefined

40. (-3, 7) and (6, 7)

$\frac{7-7}{6+3}=\frac{0}{9}=\boxed{0}$

Write an equation of a line using the given information. Leave your answer in slope-intercept form.

41. slope = -4 contains the point (3, -6)

$y+6=-4(x-3)$

$y+6=-4x+12$

$\boxed{y=-4x+6}$

42. contains the points (1,7) and (2, -3)

$m=\frac{-3-7}{2-1}=\frac{-10}{1}=-10$

$y+3=-10(x-2)$

$y+3=-10x+20$

$\boxed{y=-10x+17}$

43. contains the point (2 –4) and is parallel to the line $y=3x+5$

old m = 3

new m = 3

$y+4=3(x-2)$

$y+4=2x-6$

$\boxed{y=3x-10}$

44. contains the point (-3, -1) and is perpendicular to the line $y=\frac{1}{2}x-4$

old $m=\frac{1}{2}$

new m = -2

$y+1=-2(x+3)$

$y+1=-2x-6$

$\boxed{y=-2x-7}$

45. contains the point (3, -5) and is parallel to the line $2x-3y=6$

$2x-3y=6$

$-3y=-2x+6$

$y=\frac{2}{3}x-2$

old $m=\frac{2}{3}$

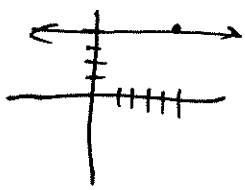
new $m=\frac{2}{3}$

$y+5=\frac{2}{3}(x-3)$

$y+5=\frac{2}{3}x-2$

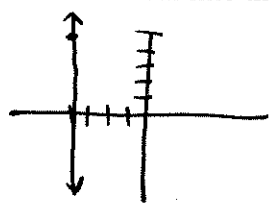
$\boxed{y=\frac{2}{3}x-7}$

46. Horizontal line that contains the point (5, 4)



$\boxed{y=4}$

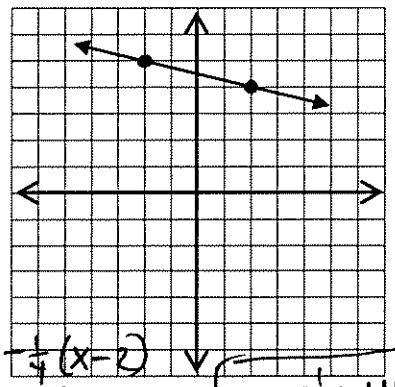
47. Vertical line that contains the point (-4, 5)



$\boxed{x=-4}$

Find the equation of each line graphed.

48.



$m = \frac{-1}{4}$

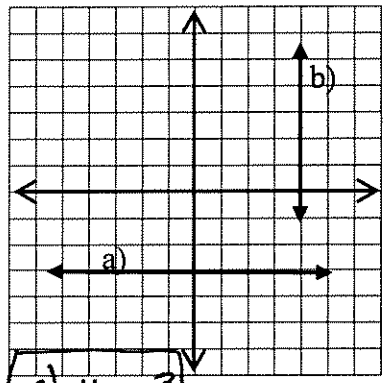
$(2,4)$

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

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

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

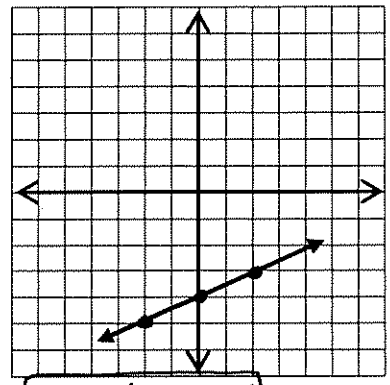
49.



a) $y = -3$

b) $x = 4$

50.



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

Solve each system by the substitution method. If no solution or infinitely many solutions then state so.

51. $2x+2y=4$

$x = 10-3y$

$2(10-3y)+2y=4$

$20-6y+2y=4$

$20-4y=4$

$-4y=-16$

$y=4$

$x = 10-12$

$x=-2$

$(-2,4)$

52. $y+3x=1$ $\quad y=-3x+1$

$2y+5x=5$

$2(-3x+1)+5x=5$

$-6x+2+5x=5$

$-x+2=5$

$-x=3$

$x=-3$

$y=9+1$

$y=10$

$(-3,10)$

53. $y=\frac{3}{2}x-4$

$2y-8=3x$

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

$3x-8-8=3x$

$-16=0$

no solution

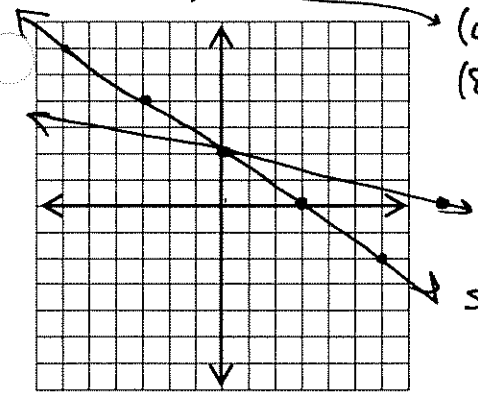
Solve each system by graphing.

54. $-3y=2x-6 \rightarrow y=-\frac{2}{3}x+2$

$x+4y=8$

$(0,2)$

$(8,0)$



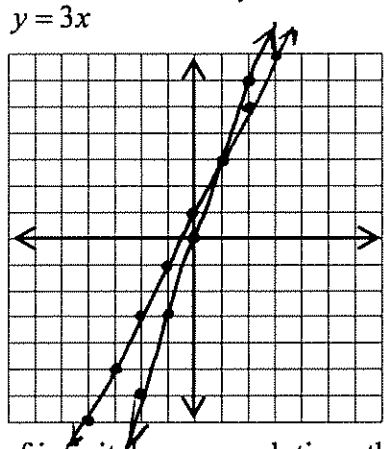
solution:

$(0,2)$

55. $2x=y-1$

$y=3x$

$y=2x+1$



solution:

$(1,2)$

Solve each system by the elimination method. If no solution of infinitely many solutions then state so.

56. $3x+3y=6 \rightarrow 3x+3y=6$

$3(2x-y=1) \quad 6x-3y=3$

$9x=9$

$x=1$

$2-y=1$

$-y=-1$

$y=1$

57. $3(3x-5y=-13)$

$5(4x+3y=2)$

$\rightarrow 9x-15y=-39$

$\rightarrow 20x+15y=10$

$29x=-29$

$x=-1$

$-3-5y=-13$

$-5y=-10$

$y=-2$

58. $-4x+2y=12 \quad -4x+2y=12$

$-2(-2x+y=6) \rightarrow 4x-2y=-12$

$0=0$

infinitely many solutions

You may use a calculator on #59-60

59. How many ounces of a 20% salt solution should be mixed with a 11% salt solution to produce 45 ounces of a 14% salt solution?

$x+y=45 \rightarrow -.2x-.2y=-9$

$.2x+.11y=.14(45) \quad .2x+.11y=6.3$

$-.09y=-2.7$

$y=30$

$x=15$

x = ounces of 20% salt solution

y = ounces of 11% salt solution

Mix 15 oz. of 20% salt solution with 30 oz. of 11% salt solution

x = # guns
C = cost in $

60. Suppose Paintball Jungle charges $30 plus an additional $6 per gun they rent out. Paintwar charges $50 plus an additional $4 per gun they rent out. Find the number of guns you must rent out for the two paintball rentals to cost the same. PJ: $C = 30+6x$ PW: $C = 50+4x$

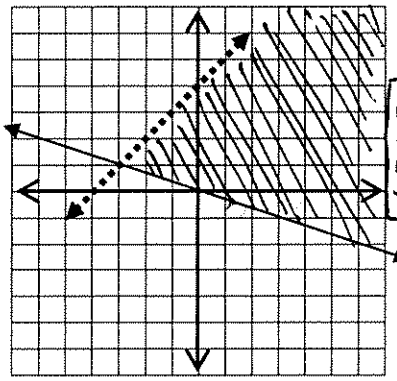
$30+6x = 50+4x$
$30+2x = 50$
$2x = 20$
$x = 10$

$C = 30+60$
$C = \$90$

The cost will be $90 for both when ya rent 10 guns

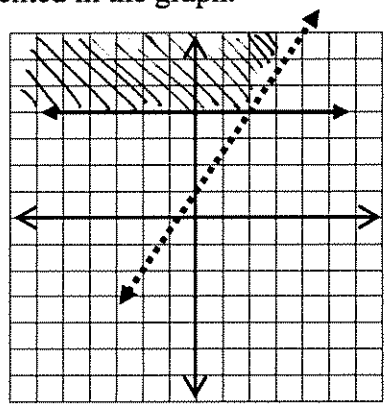
Write the inequality or system of inequalities represented in the graph.

61.



$y < x+4$
$y \geq -\frac{1}{3}x$

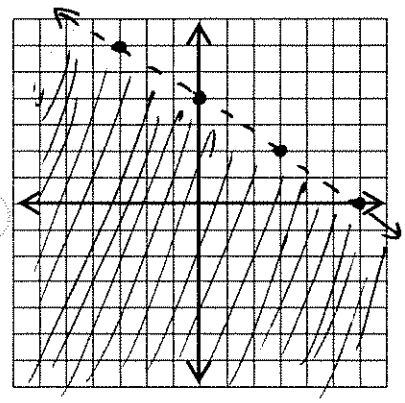
62.



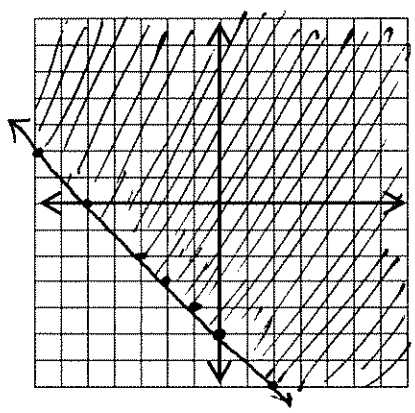
$y \geq 4$
$y > \frac{3}{2}x+1$

Graph each linear inequality.

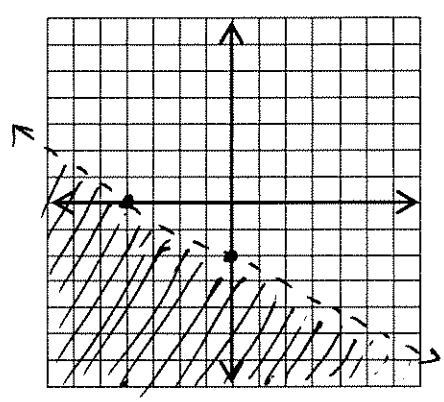
63. $y < -\frac{2}{3}x+4$



64. $y \geq -x-5$



65. $-2x-4y>8$



x	y
0	-2
-4	0

$-4y > 2x+8$
$y < -\frac{1}{2}x-2$