

Eastview Honors Algebra 2

Summer Packet

This summer packet is for all students enrolled in Honors Algebra 2 for the next school year. The entire packet will be due and collected on the first day of class. This summer packet focuses on the following Algebra I objectives which are considered prerequisite knowledge for the course. Your mastery of these concepts *is a strong indicator of success in the class*. You will be assessed on these skills during the first week of school.

- Objective 1: Solve Equations
- Objective 2: Solve Inequalities and Graph on a Number Line
- Objective 3: Graph linear inequalities
- Objective 4: Find the slope
- Objective 5: Find the x-intercept
- Objective 6: Find the y-intercept
- Objective 7: Graph Linear Equations
- Objective 8: Write the Equation of a Line
- Objective 9: Solve linear systems of equations
- Objective 10: Graph Systems of Linear Inequalities

Follow the directions in the packet and do all of the exercises, neatly showing *all of your work in the packet*. Upon completion of each section, check your answers with the correct answers. Follow the direction to get the most out of this packet. If you have forgotten how to do any of the problems, use the internet to google the objectives for help.

We will be using graphing calculators throughout the course. If you do not own a graphing calculator it is recommended that you purchase your own calculator. We recommend purchasing the TI-84 Plus.

Please note: The decision to take an Honors course is a serious one. The work in this class will require the following:

- Exemplary work habits
- Exemplary time management skills
- A genuine desire to learn
- Personal responsibility for attendance and work requirements
- Self-discipline and determination to success

Good luck, and see you in the fall!

Mr. Sherwin and Mr. Tomlinson

Objective 1: Solve equations.

Solve for \underline{x} . Show all work and circle your answer.

1. $6x - 2 = 5x - 7 - 3x$

2. $3(8x - 5) = -4(7 - 6x)$

3. $3(x - 5) + 8x = 18 - (3 - 10x)$

4. $3(8x - 5) + 3 = 22x + 2(x - 6)$

5. $x - \frac{c}{2} = -\frac{3c}{2}$

6. $t = \frac{pd}{2x}$

7. $c + ax = dx$

8. $|3x + 19| = 13$

$$9. \left| 4 - \frac{x}{5} \right| = 10$$

$$10. 7 - |4x + 1| = -2$$

Objective 2: Solve inequalities and graph on a number line.

Solve each inequality, make a number line, and graph your answer on your number line. Show all work.

$$11. 36 - 11x \geq -63$$

$$12. 7x - 12 \leq 9(2x - 3)$$

$$13. 5 - 3(10 - 7x) < 4(2x + 10)$$

$$14. 12 < x + 3 \text{ or } -5 \leq 1 - x$$

$$15. 14 < 5 - 3x \leq 53$$

$$16. 52 < 4 - 3x < 13$$

$$17. 7 - 3x \geq -5 \text{ and } -2 \leq 5 - 7x$$

$$18. 3x - 13 < -4 \text{ or } 7 - 2x \leq 5$$

$$19. |-8 + x| \leq 6$$

$$20. |x + 7| > 12$$

$$21. |7 - x| < 6$$

$$22. |5x - 10| \geq 15$$

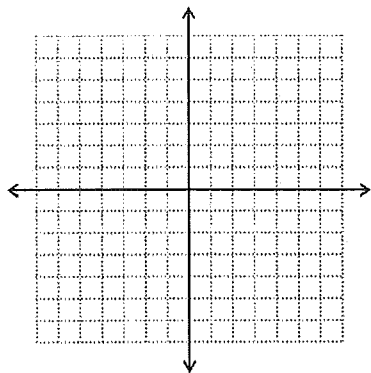
$$23. |4x - 9| + 20 > 35$$

$$24. 5 - 3|4x + 3| > 2$$

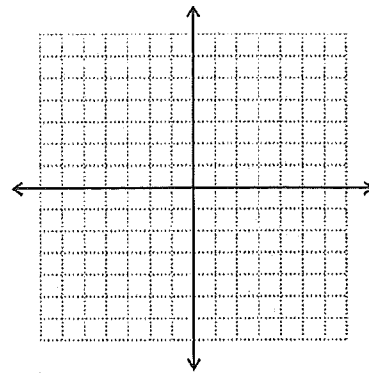
Objective 3: Graph linear inequalities.

Graph each inequality on a separate coordinate plane. Show all work.

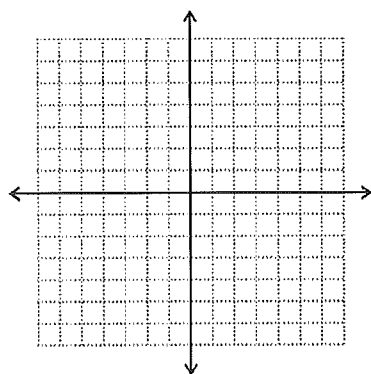
25. $x > -6$



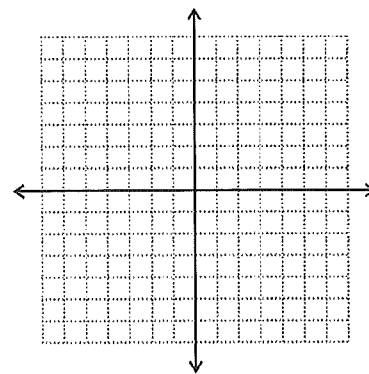
26. $x - 2y > 4$



27. $6x - 8y \geq -16$



28. $y > -x$



Objective 4: Find slope.

Find the slope of the line. Show all work.

29. through $(4, 9)$ and $(11, 5)$

30. through $(8, -1)$ and $(-8, -1)$

31. through $(-3, 6)$ and $(-3, 0)$

32. $x = -2$

33. $6x - 10y = -1$

34. $y = -1$

35. parallel to $5x - y = 2$

36. perpendicular to $3x - 5y = 7$

Objective 5: Find x intercept.

Objective 6: Find y intercept.

Find the x and y intercepts of the line. x and y intercepts must be given as an ordered pair.
Show all work.

37. $10x - 4y = -20$

38. $y = 2x + 3$

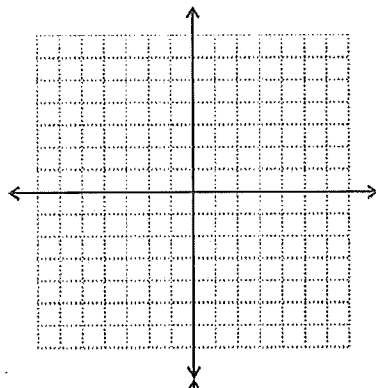
39. $x = 3$

40. $y = -7$

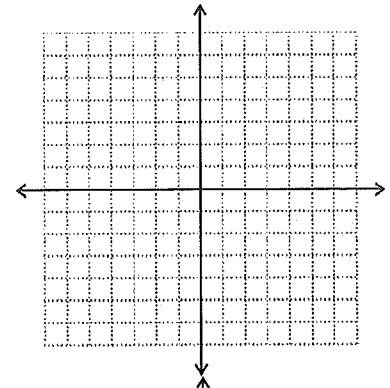
Objective 7: Graph linear equations.

Graph each line on the coordinate plane provided. Show all work necessary to graph the line.

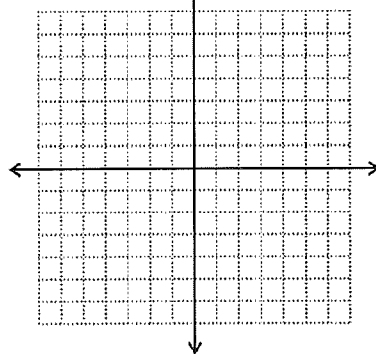
41. $x = 5$



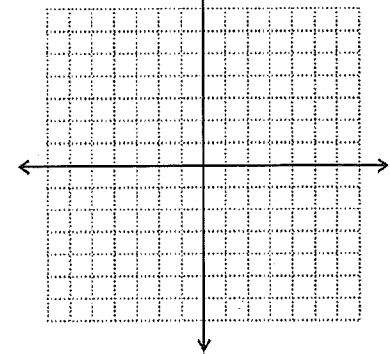
42. $3y = 12$



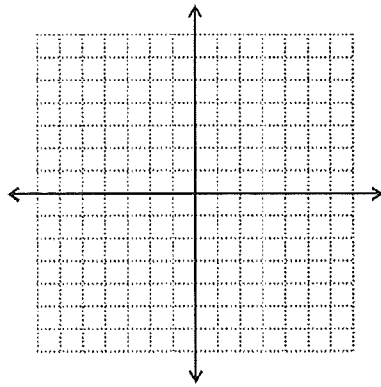
43. $y = \frac{1}{5}x - 5$



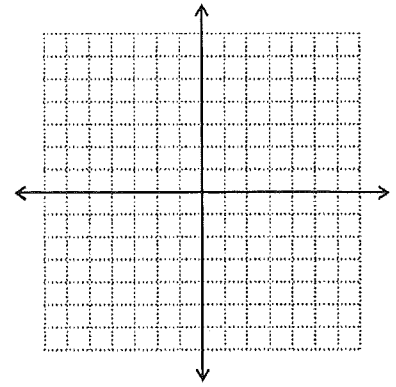
44. $y = -3x$



45.
 $4x - y = -2$



46.
 $3x - 8y + 24 = 0$



Objective 8: Write the equation of a line.

Write the equation of the line in slope-intercept form. Show all work and circle your answer.

47. slope = -2, y-intercept (0, -7)

48. slope = -4, passing through (-2, -5)

49. x-intercept (-3, 0), y-intercept (0, 9)

50. passing through (6, -5) and (-2, 7)

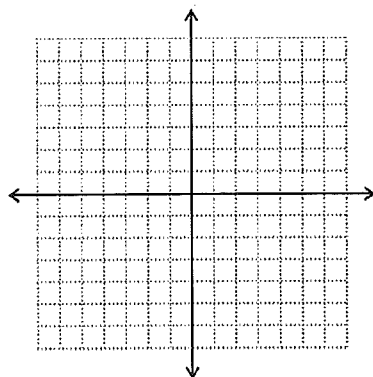
51. parallel to $2x - 3y = 6$ and passing through (-2, 5)

52. perpendicular to $y = -2x + 6$ and passing through (-4, 2)

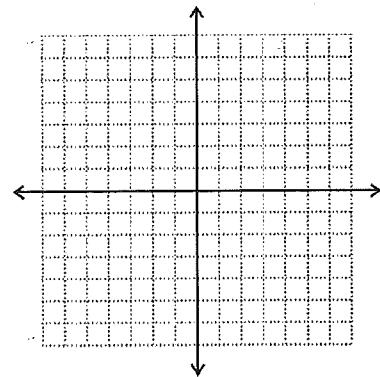
Objective 9: Solve linear systems of equations.

Solve by graphing on the coordinate plane provided. Show all work. Answers should be in the form of an ordered pair where appropriate. **If the lines are coincident write all points on the line and name the line. Write no solution for parallel lines.** Put your answer in the blank.

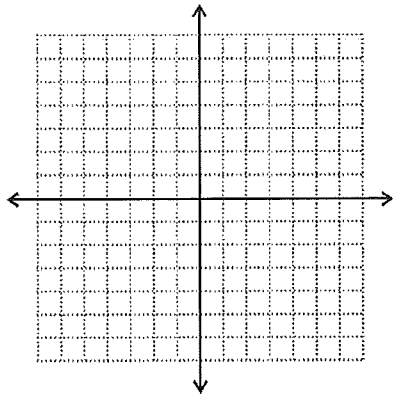
53. $\begin{cases} x + 6 = 0 \\ 4y + 12 = 0 \end{cases}$



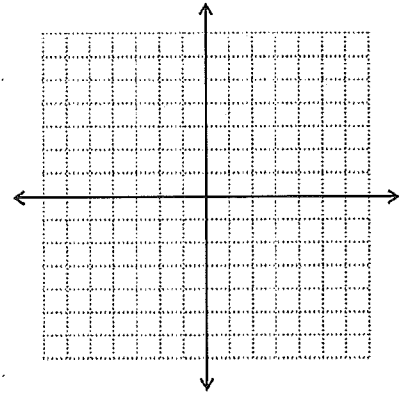
54. $\begin{cases} 3x - 3y = 0 \\ 5x - 5y = 0 \end{cases}$



$$55. \begin{cases} y = \frac{3}{2}x - 9 \\ x - 5y - 6 = 0 \end{cases}$$



$$56. \begin{cases} -2x + 10y - 2 = 0 \\ x - 5y + 2 = 0 \end{cases}$$



Solve by substitution or elimination (linear combination). Answers should be in the form of an ordered pair where appropriate. If the lines are coincident write all points on the line and name the line. Write no solution for parallel lines. Show all work and circle your answer.

$$57. \begin{cases} 4x - 6y = 20 \\ 2x - 3y = 10 \end{cases}$$

$$58. \begin{cases} 2x + 3y = 20 \\ 6x - y = 20 \end{cases}$$

$$59. \begin{cases} 12x - 10y = 0 \\ -6x + 5y = 2 \end{cases}$$

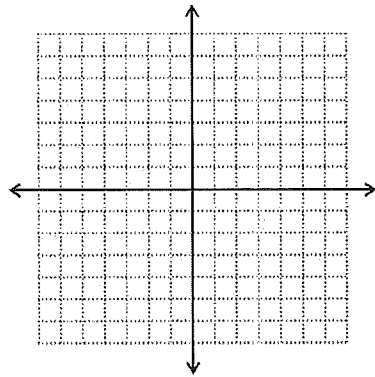
$$60. \begin{cases} x + 3y - 5 = 0 \\ 2x + 6y - 10 = 0 \end{cases}$$

Objective 10: Graph systems of linear inequalities.

Graph the system of linear inequalities on the coordinate plane. Shade only the solution area. Show all work.

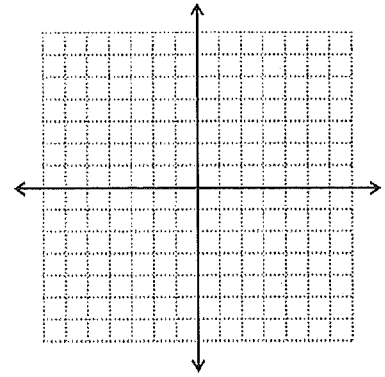
61.

$$\begin{cases} x < 5 \\ y \geq 2 \end{cases}$$



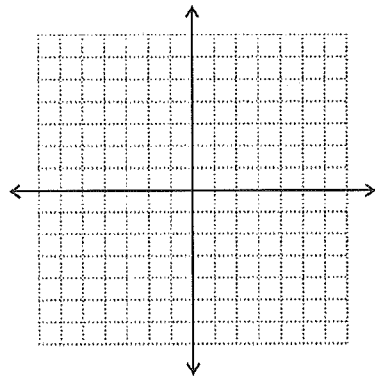
62.

$$\begin{cases} x - 3y < 0 \\ y \geq -x + 4 \end{cases}$$



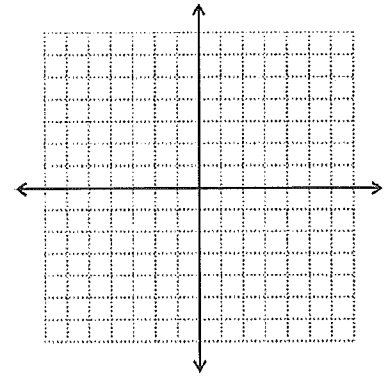
63.

$$\begin{cases} y < -2x \\ y > -2x + 3 \end{cases}$$



64.

$$\begin{cases} y \geq -1 \\ x + y < 3 \end{cases}$$



ANSWERS

Objective 1

1. $x = -\frac{5}{4}$

4. all real numbers

7. $x = \frac{-c}{a-d}$ (or $x = \frac{c}{d-a}$)

10. $x = 2$ or $x = \frac{-5}{2}$

2. no solution

5. $x = -c$

8. $x = -2$ or $x = \frac{-32}{3}$

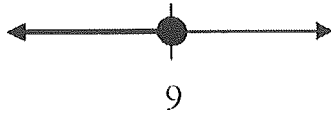
3. $x = 30$

6. $x = \frac{pd}{2t}$

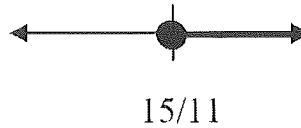
9. $x = -30$ or $x = 70$

Objective 2

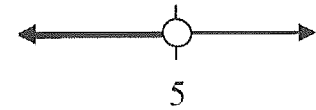
11. $x \leq 9$



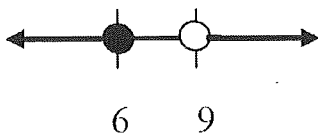
12. $x \geq \frac{15}{11}$



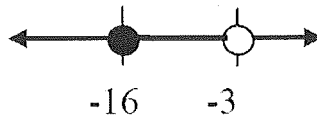
13. $x < 5$



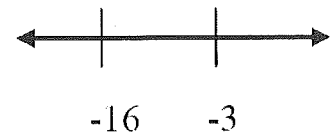
14. $x \leq 6$ or $x > 9$



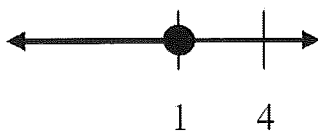
15. $-16 \leq x < -3$



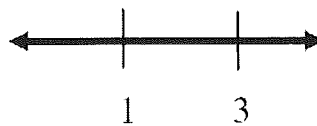
16. no solution



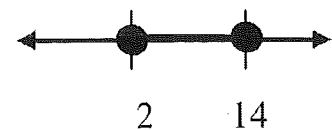
17. $x \leq 1$



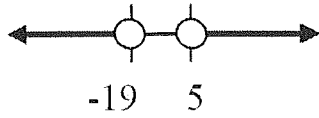
18. all real numbers



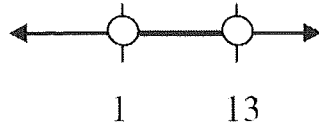
19. $2 \leq x \leq 14$



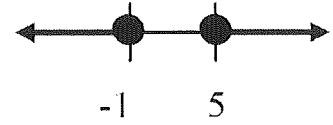
20. $x < -19$ or $x > 5$



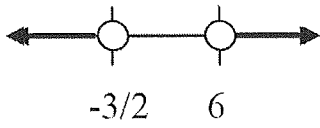
21. $1 < x < 13$



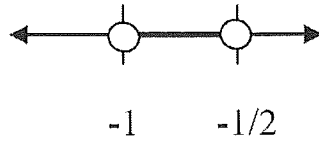
22. $x \leq -1$ or $x \geq 5$



23. $x < -\frac{3}{2}$ or $x > 6$

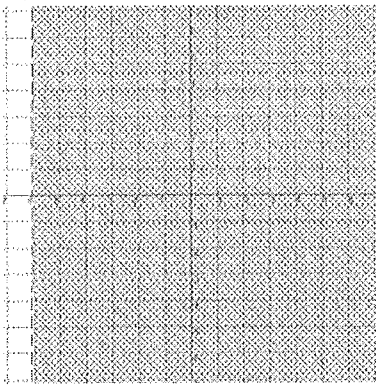


24. $-1 < x < -\frac{1}{2}$

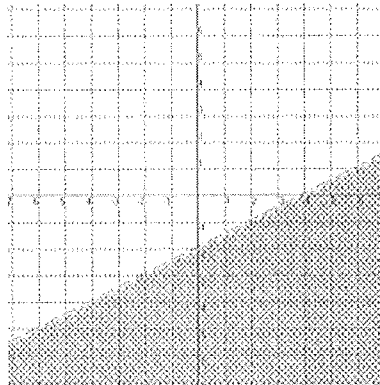


Objective 3

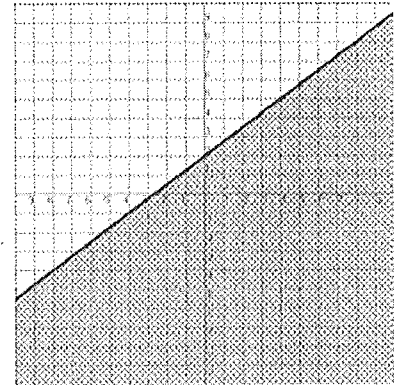
25.



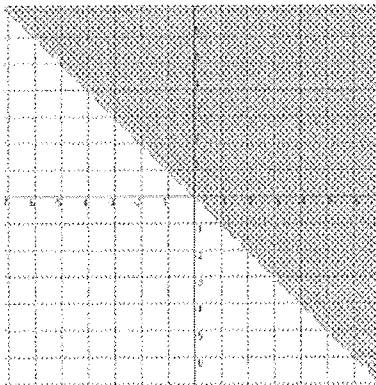
26.



27.



28.



Objective 4

29. $-\frac{4}{7}$

32. undefined

35. 5

30. 0

33. $\frac{3}{5}$

36. $-\frac{5}{3}$

31. undefined

34. 0

Objectives 5 & 6

37. $(-2,0), (0,5)$

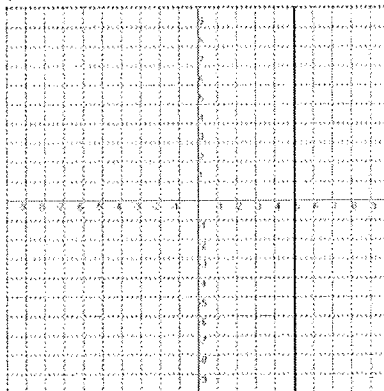
38. $\left(-\frac{3}{2}, 0\right), (0,3)$

39. $(3,0)$, no y-intercept

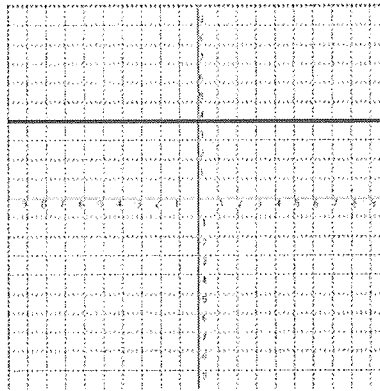
40. $(0,-7)$, no x-intercept

Objective 7

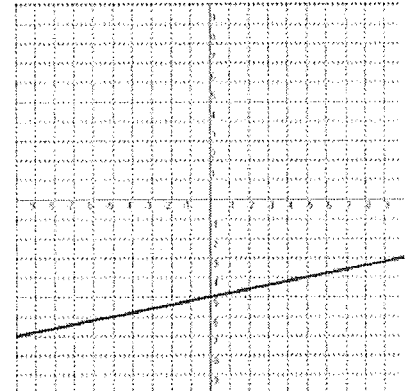
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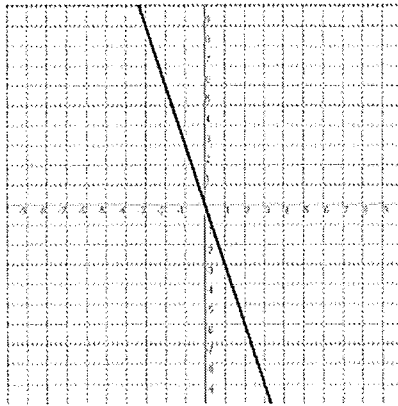
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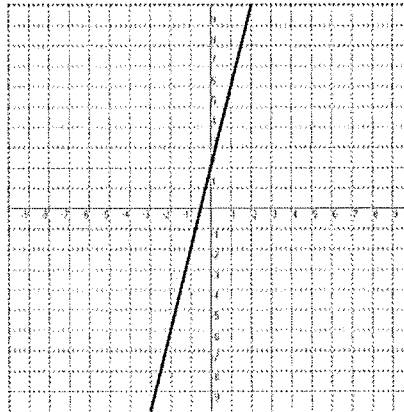
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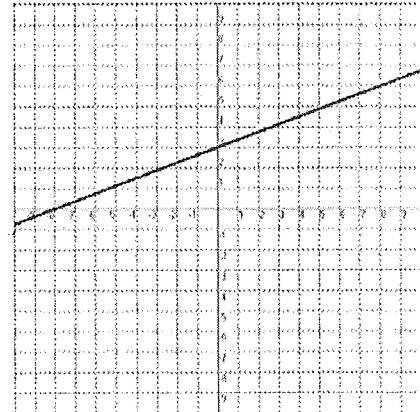
44.



45.



46.



Objective 8

47. $y = -2x - 7$

48. $y = -4x - 13$

49. $y = 3x + 9$

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

51. $y = \frac{2}{3}x + \frac{19}{3}$

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

Objective 9

53. $(-6, -3)$

54. all points on the line
 $3x - 3y = 0$

55. $(6, 0)$

56. no solution

57. all points on the line
 $4x - 6y = 20$

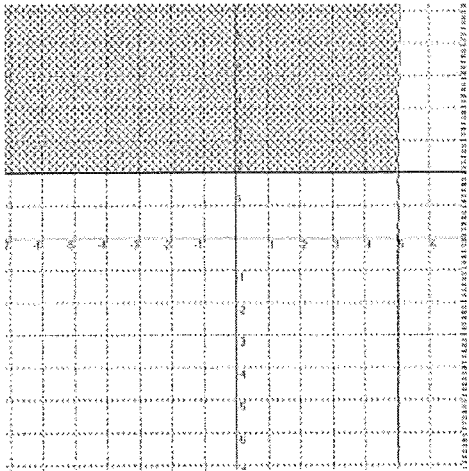
58. $(4, 4)$

59. no solution

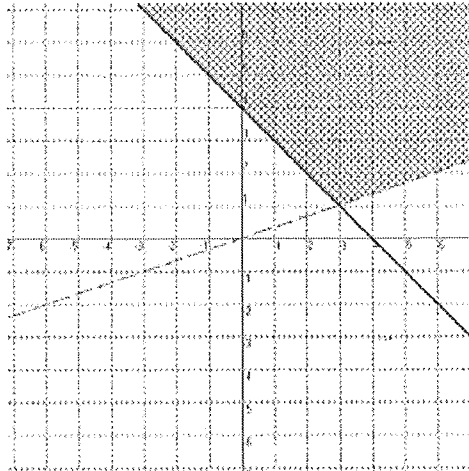
60. all points on the line
 $x + 3y - 5 = 0$

Objective 10

61.



62.



63. no solution

64.

