Math 60, HW 18 Section 3.2 Name: _____

Concept and Vocabulary:

1. The x-coordinate of a point where a graph crosses the x-axis is called a/an _____.

2. The y-coordinate of a point where a graph crosses the y-axis is called a/an _____.

6. Given the equation $Ax + By = C$, to find the x-intercept (if there is one), let _____ $= 0$ and solve for _____.

7. Given the equation $Ax + By = C$, to find the y-intercept (if there is one), let _____ $= 0$ and solve for _____.

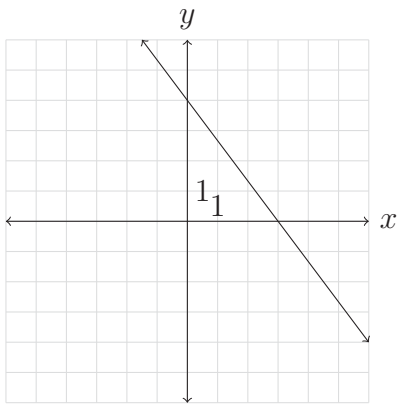
8. The graph of the equation $y = 3$ is a/an _____ line.

9. The graph of the equation $x = -2$ is a/an _____ line.

Practice Exercises:

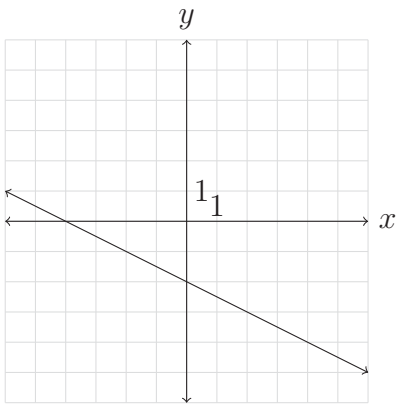
In exercises 1 - 7 odd, use the graph to determine the x and y intercepts of the given line.

1.



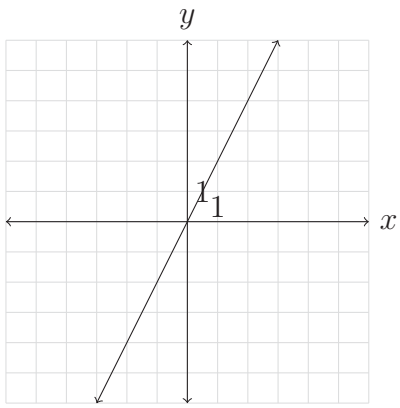
a. x-intercept b. y-intercept

3.



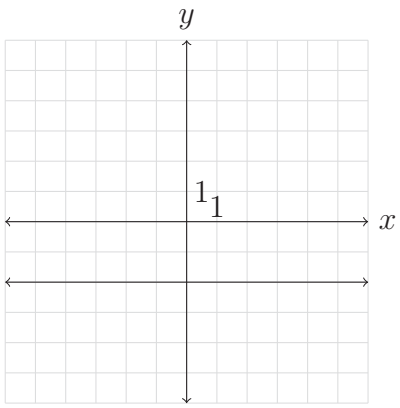
a. x-intercept b. y-intercept

5.



a. x-intercept b. y-intercept

7.



a. x-intercept b. y-intercept

In exercises 9 - 17 odd, find the x-intercept and the y-intercept of the graph of each equation. Do not graph the equation.

9. $2x + 5y = 20$

11. $2x - 3y = 15$

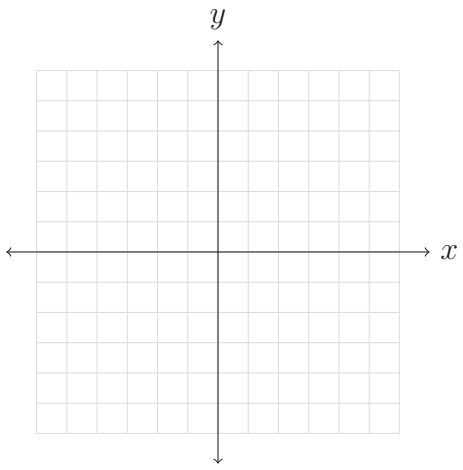
13. $-x + 3y = -8$

15. $7x - 9y = 0$

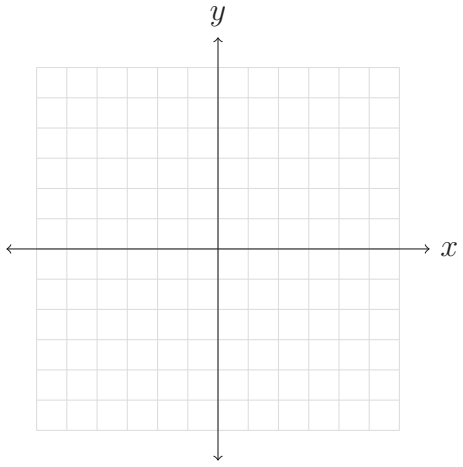
17. $2x = 3y - 11$

In exercises 19 - 39, use intercepts and a checkpoint to graph each equation.

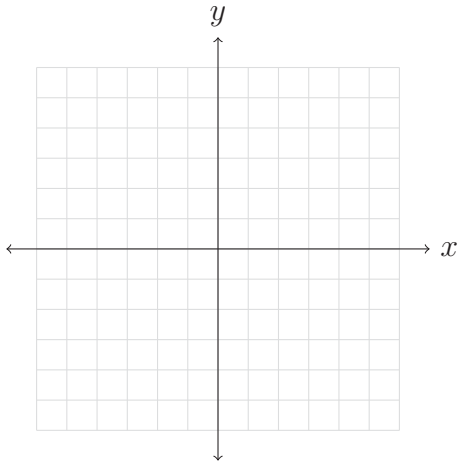
19. $x + y = 5$



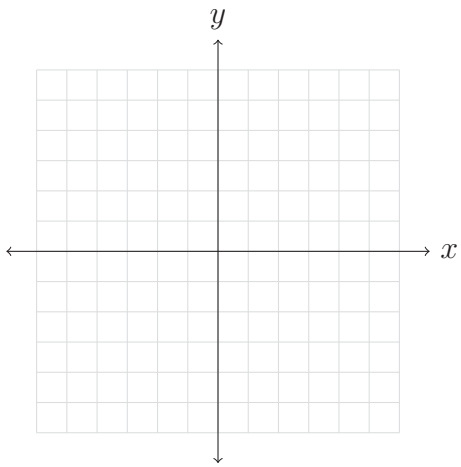
21. $x + 3y = 6$



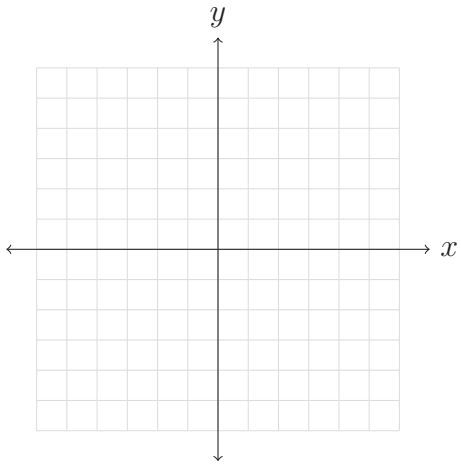
23. $6x - 9y = 18$



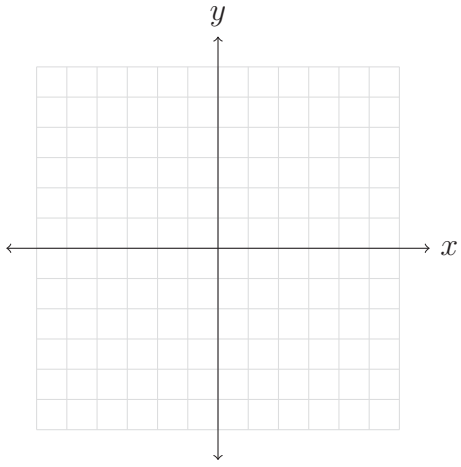
25. $-x + 4y = 6$



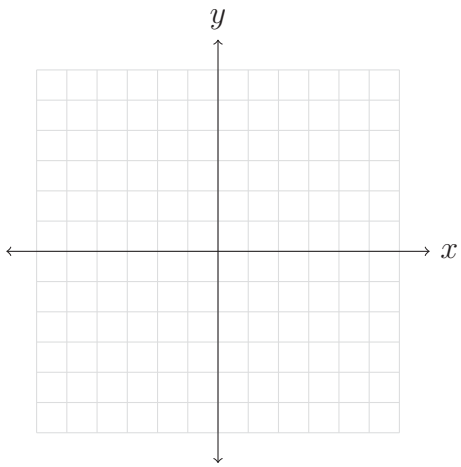
27. $2x - y = 7$



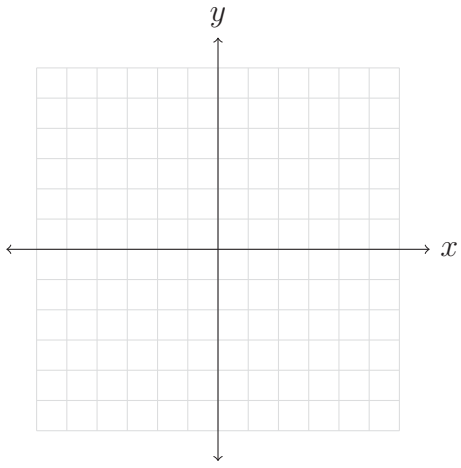
29. $3x = 5y - 15$



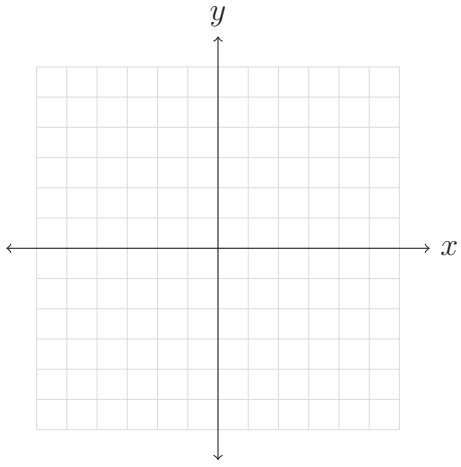
31. $25y = 100 - 50x$



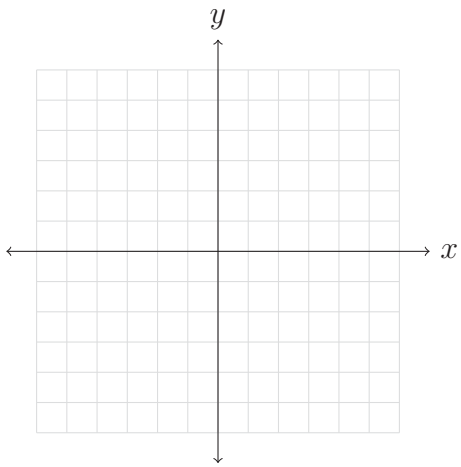
33. $2x - 8y = 12$



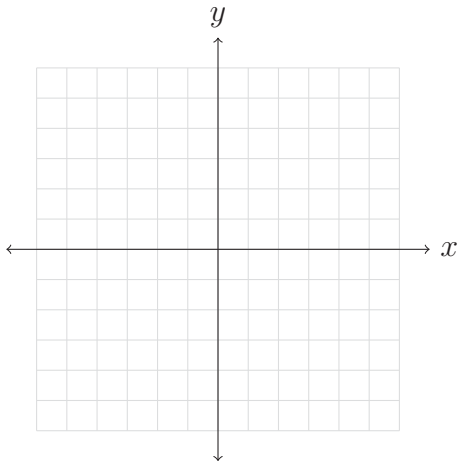
35. $x + 2y = 0$



37. $y - 3x = 0$

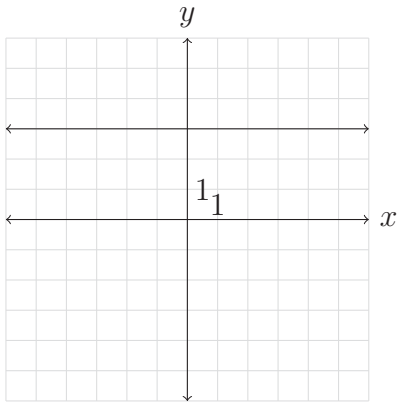


39. $2x - 3y = -11$

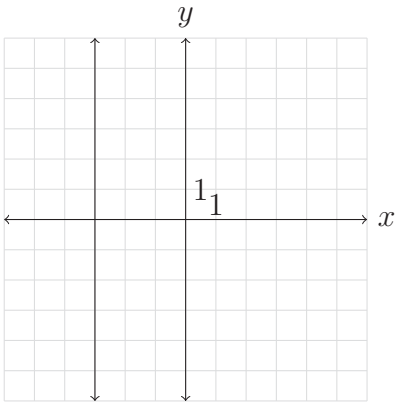


In exercises 41 - 45 odd, write an equation for each graph.

41.



43.



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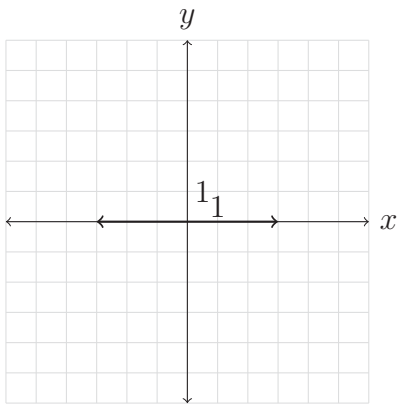
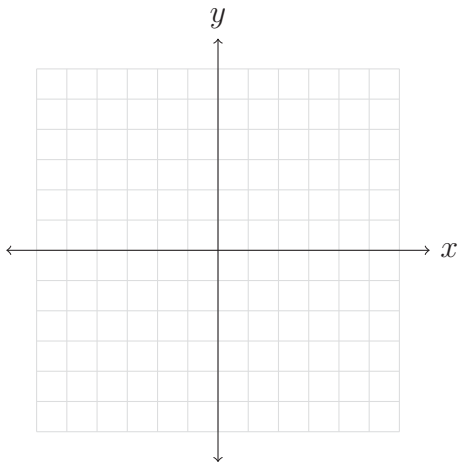
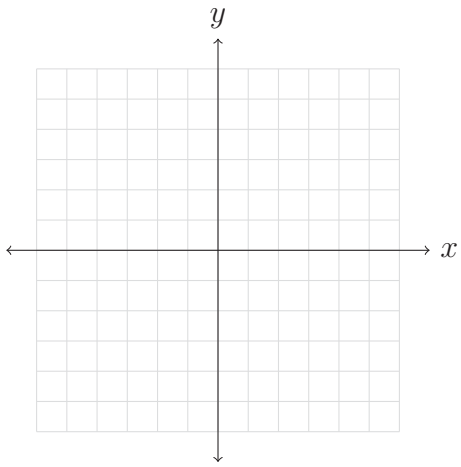


In exercises 47 - 61 odd, graph each equation.

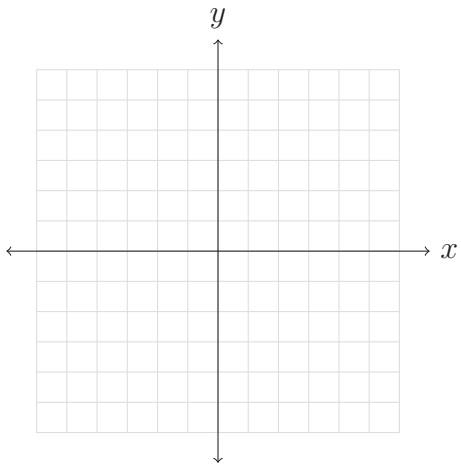
47. $y = 4$



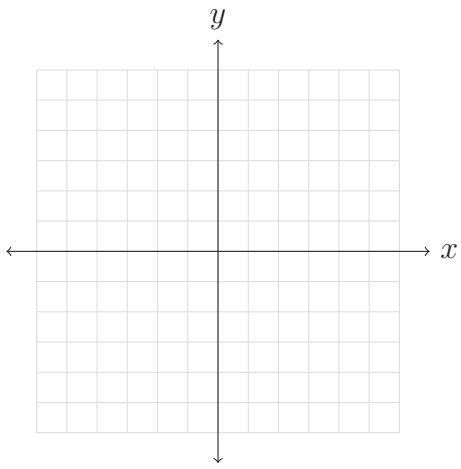
49. $y = -2$



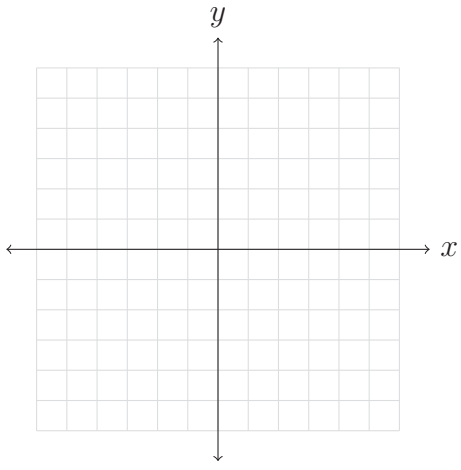
51. $x = 2$



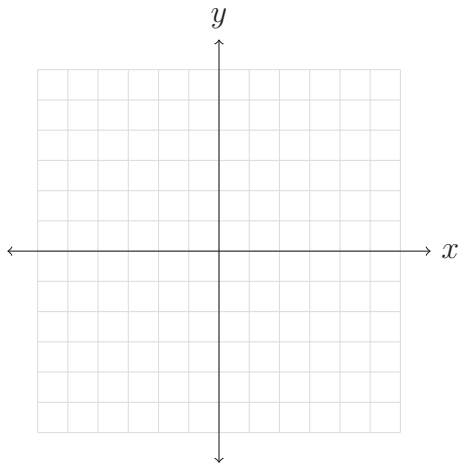
53. $x + 1 = 0$



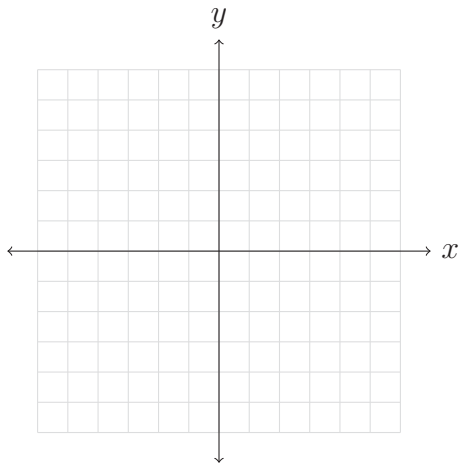
55. $y - 3.5 = 0$



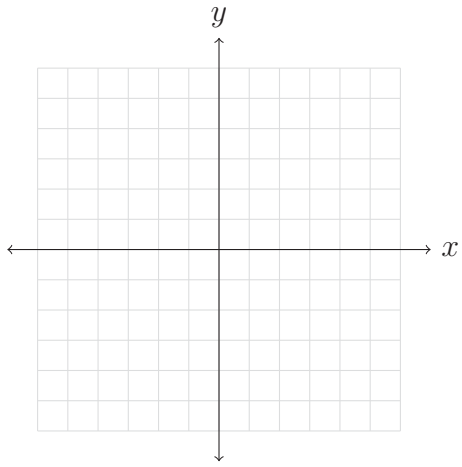
57. $x = 0$



59. $3y = 9$



61. $12 - 3x = 0$



Applications:

The flight of an eagle is observed for 30 seconds. The graph in the text shows the eagle's height, in meter, during this period of time. Use the graph to answer exercises 71 - 75 odd.

71. During which period of time is the eagle's height decreasing?

73. What is the y-intercept? What does this mean about the eagle's height at the beginning of the observation?

75. Use integers to write five x-intercepts of the graph. What is the eagle doing during these times?

77. A new car worth \$45,000 is depreciating in value by \$5,000 per year. The mathematical model

$$y = -5000x + 45,000$$

describes the car's value, y, in dollars, after x years.

a. Find the x-intercept. Describe what this means in terms of the car's value.

b. Find the y-intercept. Describe what this means in terms of the car's value.

c. Use the intercepts to graph the linear equation. Because x and y must be nonnegative (why?), limit your graph to quadrant I and its boundaries.

d. Use your graph to estimate the car's value after five years.