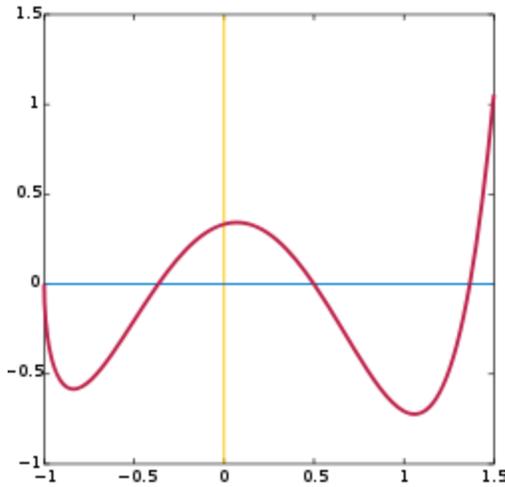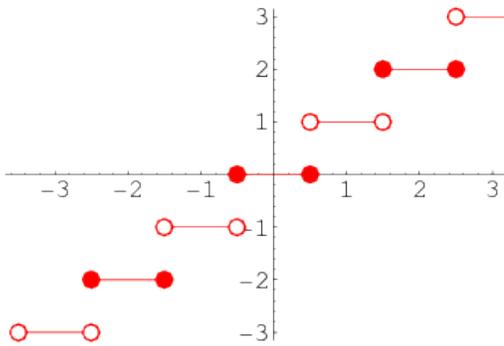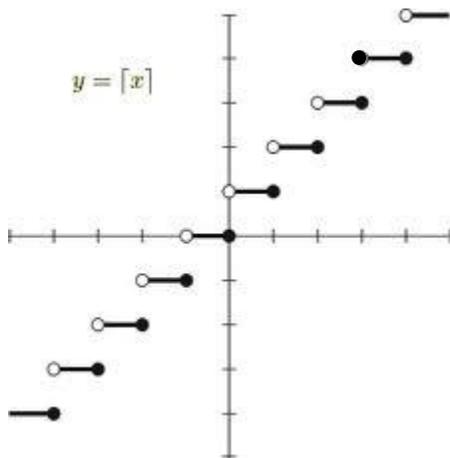1. Determine if y is a function of x.

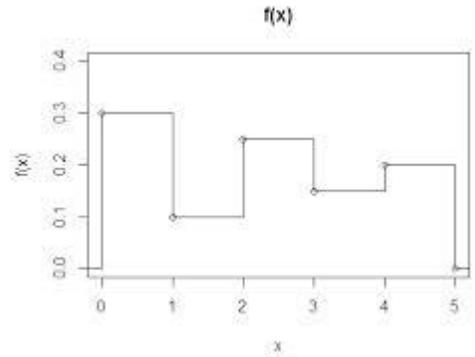2. Determine if y is a function of x.

3. Determine if y is a function of x.

$y = \lceil x \rceil$

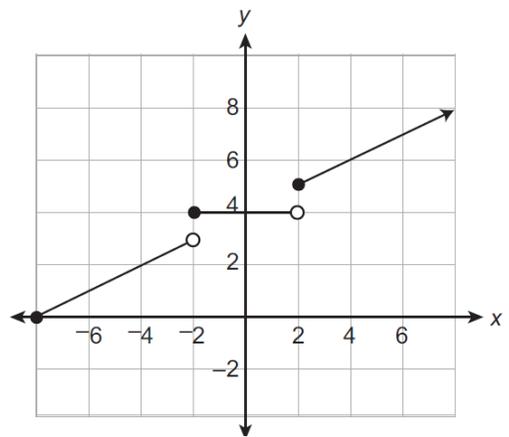4. Determine if y is a function of x.

f(x)

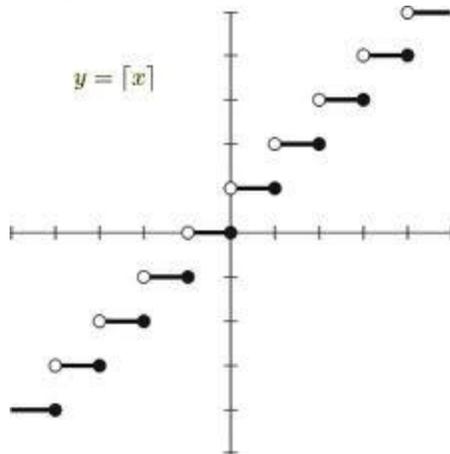5. The graph of a function is shown below.
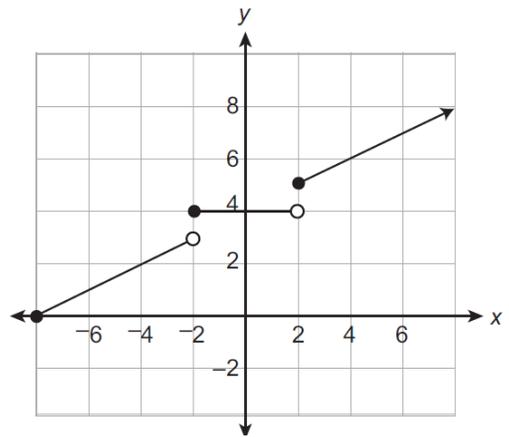
Is 0 a value in the range of the function?
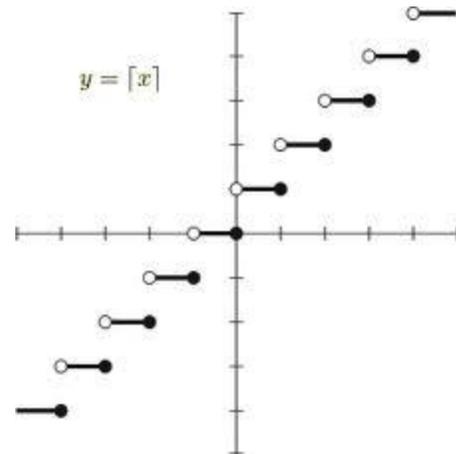
6. The graph of a function is shown below.

Is -2 a value in the range of the function?

7. The graph of a function is shown below.

$y = \lceil x \rceil$

8. The graph of a function is shown below.

$y = \lceil x \rceil$

Is 0.5 a value in the range?

Is -2 a value in the range?

9. A pizza restaurant charges for pizza and adds a delivery fee. The cost (c), in dollars, to have any number of pizza (p) delivered to a home is described by the function c = 5p + 2. How much is the delivery fee?

10. A pizza restaurant charges for pizza and adds a delivery fee. The cost (c), in dollars, to have any number of pizza (p) delivered to a home is described by the function c = 10p + 6. How much does each pizza cost?

11. A pizza restaurant charges for pizza and adds a delivery fee. The cost (c), in dollars, to have any number of pizza (p) delivered to a home is described by the function c = 14p + 8. How much is the delivery fee?

12. A pizza restaurant charges for pizza and adds a delivery fee. The cost (c), in dollars, to have any number of pizza (p) delivered to a home is described by the function c = 15p + 13. How much does each pizza cost?

13. The table below shows values of y as a function of x.

x	Y
2	6
5	21
9	14
13	61
20	96

Write the linear equation that best describes the relationship between x and y.

14. The table below shows values of y as a function of x.

x	Y
2	11
6	23
14	47
26	83
34	107

Write the linear equation that best describes the relationship between x and y.

15. The table below shows values of y as a function of x.

x	Y
2	4
4	5
6	6
8	7
10	8

Write the linear equation that best describes the relationship between x and y.

16. The table below shows values of y as a function of x.

x	Y
2	0
7	-10
13	-22
17	-30
21	-38

Write the linear equation that best describes the relationship between x and y.

17. Jeff's restaurant sells hamburgers. The amount charged for a hamburger (h) is based on the cost for a plain hamburger plus an additional charge for each topping (t) as shown in the equation below.

$$h = 0.60t + 5$$

What does the number 5 represent in the equation?

18. Jeff's restaurant sells hamburgers. The amount charged for a hamburger (h) is based on the cost for a plain hamburger plus an additional charge for each topping (t) as shown in the equation below.

     h = 0.80t + 5

What does the number 0.80 represent in the equation?

19. Jeff's restaurant sells hamburgers. The amount charged for a hamburger (h) is based on the cost for a plain hamburger plus an additional charge for each topping (t) as shown in the equation below.

     h = 0.60t + 5

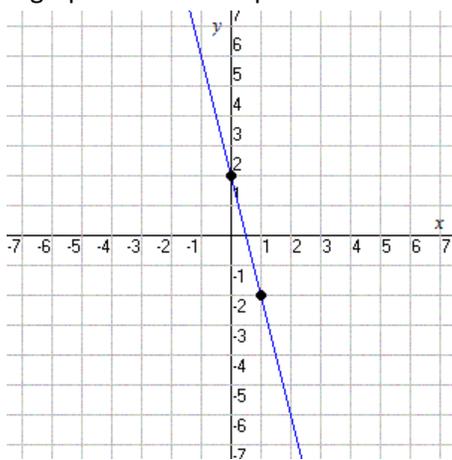What does the letter t represent in the equation?

20. Jeff's restaurant sells hamburgers. The amount charged for a hamburger (h) is based on the cost for a plain hamburger plus an additional charge for each topping (t) as shown in the equation below.
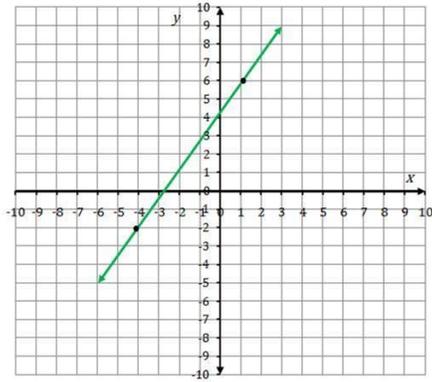
     h = 0.60t + 5

What does the number h represent in the equation?

21. A graph of a linear equation is shown below.

Write the equation that represents the graph above?

22. A graph of a linear equation is shown below.

Write the equation that represents the graph above?

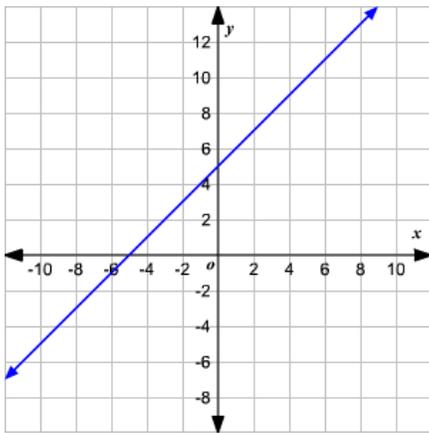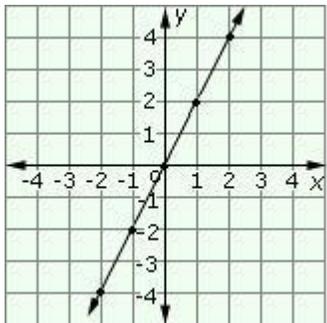23. A graph of a linear equation is shown below.

Write the equation that represents the graph above?

24. A graph of a linear equation is shown below.

Write the equation that represents the graph above?

25. The scatter plot below shows the sales (y) for ice cream based on temperature (x).

Temperature °C
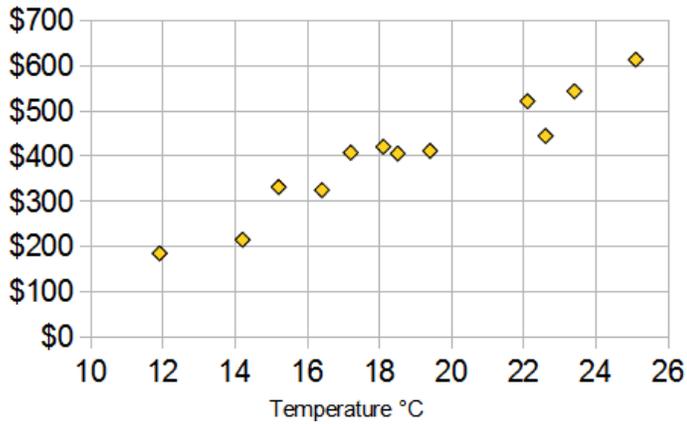
Determine the equation that **best** describes the line of best fit?

26. The scatter plot below shows the size of the plant (y) related to the age of the plant (x).

AGE

Determine the equation that **best** describes the line of best fit?

27. The scatter plot below shows the relationship between the amount of Horsepower in a vehicle (x) and the weight of the vehicle (y).

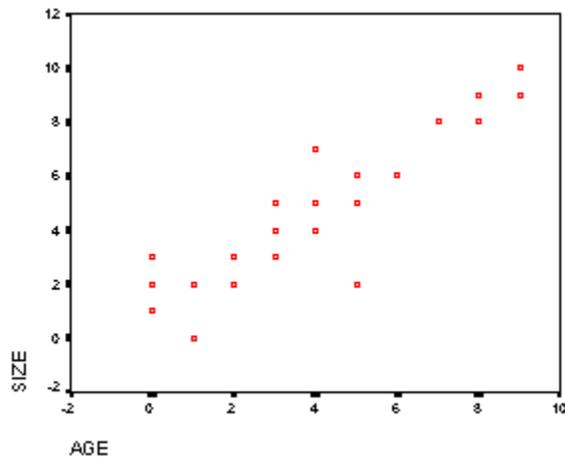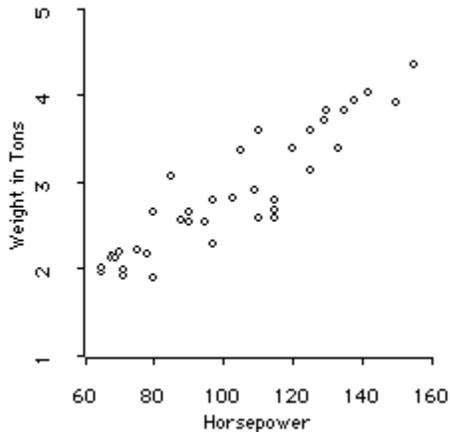Determine the equation that **best** describes the line of best fit?

28. The daily high temperatures in degrees Fahrenheit in Brodheadsville, PA, for a period of 10 days are shown below.

    73   82   99   96   88   95   98   93   80   82

Determine the median and mean of the given data.

29. The daily high temperatures in degrees Fahrenheit in Brodheadsville, PA, for a period of 10 days are shown below.

    63   72   49   56   68   45   48   53   60   32

Determine the median and mean of the given data.

30. The daily high temperatures in degrees Fahrenheit in Brodheadsville, PA, for a period of 10 days are shown below.

    83   92   79   76   88   95   96   95   84   88

Draw a box and whisker plot to represent the given data.

31. The daily high temperatures in degrees Fahrenheit in Brodheadsville, PA, for a period of 10 days are shown below.

    63   72   49   56   68   45   48   53   60   32

    Draw a box and whisker plot to represent the given data.

32. Vy asked 200 students to select their favorite sport and then recorded the results in the bar graph below.
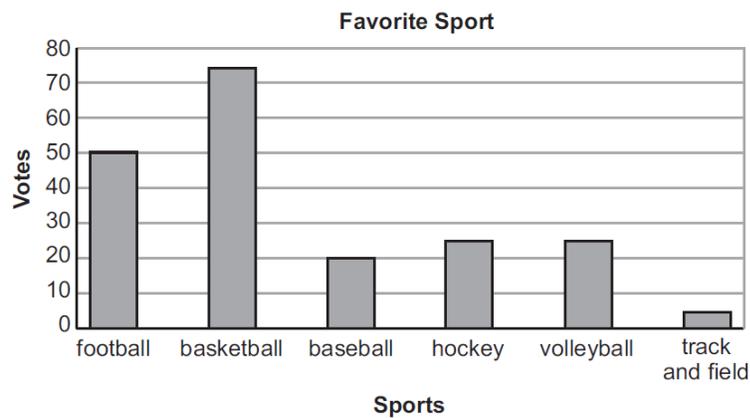
Vy will ask another 90 students to select their favorite sport. Based on the information in the bar graph, how many more students of the next 90 asked will select basketball rather than football as their favorite sport?

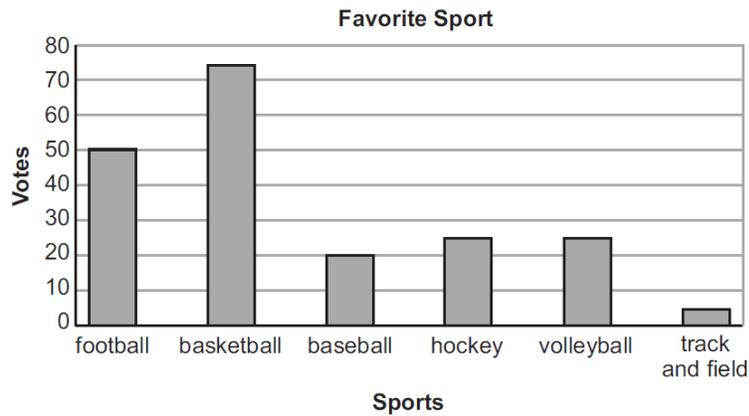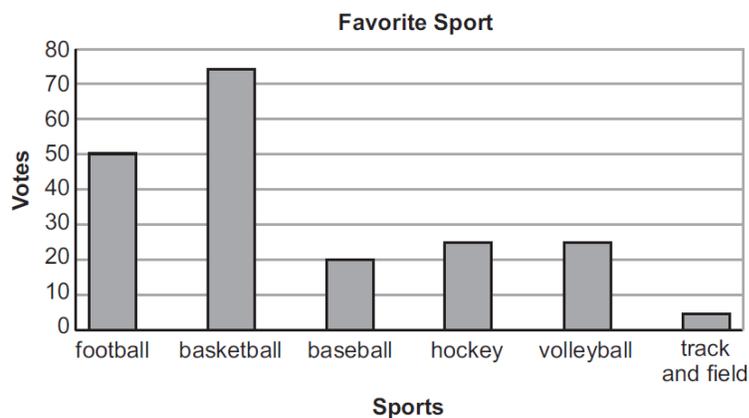33. Vy asked 200 students to select their favorite sport and then recorded the results in the bar graph below.

Favorite Sport

Vy will ask another 90 students to select their favorite sport. Based on the information in the bar graph, how many more students of the next 90 asked will select hockey rather than track and field as their favorite sport?

34. Vy asked 200 students to select their favorite sport and then recorded the results in the bar graph below.

Favorite Sport

Vy will ask another 100 students to select their favorite sport. Based on the information in the bar graph, how many more students of the next 100 asked will select football rather than hockey as their favorite sport?

35. Vy asked 200 students to select their favorite sport and then recorded the results in the bar graph below.
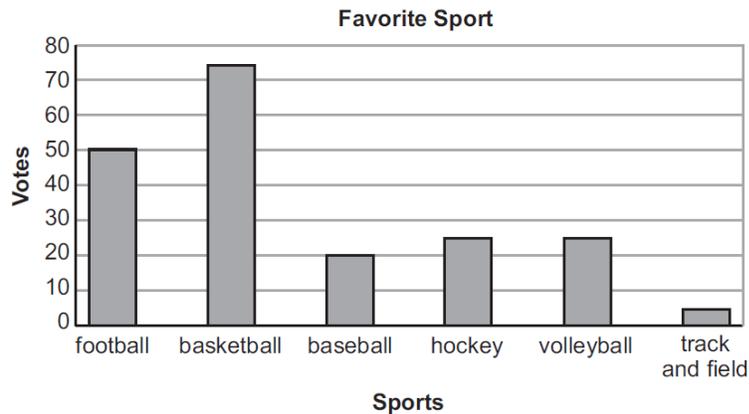
Favorite Sport

Vy will ask another 150 students to select their favorite sport. Based on the information in the bar graph, how many more students of the next 150 asked will select basketball rather than baseball as their favorite sport?

36. A number cube with sides labeled 1 through 6 is rolled two times, and the sum of the numbers that end face up is calculated. What is the probability that the sum of the numbers is 4?

37. A number cube with sides labeled 1 through 6 is rolled two times, and the sum of the numbers that end face up is calculated. What is the probability that the sum of the numbers is 12?

38. A number cube with sides labeled 1 through 6 is rolled two times, and the sum of the numbers that end face up is calculated. What is the probability that the sum of the numbers is 8?

39. A number cube with sides labeled 1 through 6 is rolled two times, and the sum of the numbers that end face up is calculated. What is the probability that the sum of the numbers is 13?

Algebra 1 Keystone Open-ended questions

1. Hector's family is on a car trip.
   When they are 84 miles from home, Hector begins recording their distance driven (d), in miles, after h hours in the table below.

Distance by Hour	
Time in Hours (h)	Distance in Miles (d)
0	58
1	143
2	228
3	313

   The pattern continues.
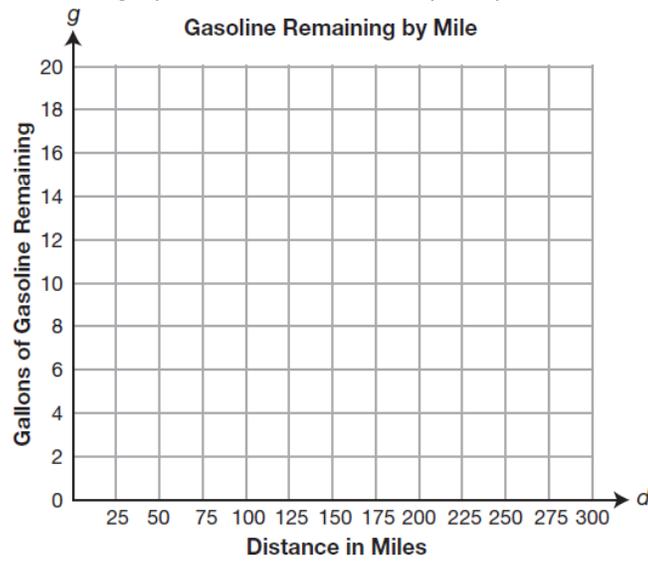   A. Write an equation to find the distance driven (d), in miles, after a given number of hours (h).

   B. Hector also kept track of the remaining gasoline. The equation shown below can be used to find the gallons of gasoline remaining (g) after distance driven (d), in miles.

   $$g = 15 - \frac{1}{20}d$$

   Use the equation to find the missing values for gallons of gasoline remaining.

Gasoline Remaining by Mile	
Distance in Miles (d)	Gallons of Gasoline Remaining (g)
100	
200	
300	

C. Draw the graph of the line formed by the points in the table from Part B.

g

Gasoline Remaining by Mile

Gallons of Gasoline Remaining

20
18
16
14
12
10
8
6
4
2
0

25 50   75 100 125 150 175 200 225 250 275 300   *d*

Distance in Miles

D. Explain why the slope of the line drawn in part C must be negative.

2. The weight, in pounds, of each wrestler on the high school wrestling team at the beginning of the season is listed below.

          188   152   122   160   216   140

A. What is the median weight of the wrestlers?

B. What is the mean weight of the wrestlers?

C. Two more wrestlers join the team during the season. The addition of these wrestlers has no effect on the mean weight of the wrestlers, but the median weight of the wrestlers increases 3 pounds. Determine the weights of the two new wrestlers.