Name: _____

Topic 1 – Patterns in data (algebraic)

An **arithmetic sequence** is a sequence of numbers in which the difference between each of the terms is constant (i.e., it is always the same). For example, examine the sequence of numbers below:

3, 7, 11, 15, 19, ...

In this sequence, the difference, or, the quantity **added** to one term in order to get the next term, is constant. It is **4**. Once again, it is important for the sake of consistency to refer to the difference as the quantity **added** (not subtracted) to one term in order to get the next term. It is possible for the difference to be a negative quantity.

Is the series an arithmetic sequence? If so, what is the common difference?

1. 9, 17, 25, 33, 41

2. 1, 2, 4, 7, 11, 16

3. 12, 7, 2, -3, -8,...

4. 1.4, 1.6, 1.8, 2.0,...

5. 4, 6, 9, 11, 14, 16, 19,...

6. $\frac{1}{2}, \frac{5}{4}, 2, \frac{11}{4}, \frac{7}{2}$

To find the *n*th term of an arithmetic sequence, label the terms as 1, 2, 3, etc. and write a rule for the table in terms of *n.*

Write an equation for the *n*th term of the arithmetic sequence -12, -8, -4, 0, …. .

# term	1	2	3	4	*n*
value	-12	-8	-4	0	

What is the 34th term of this sequence? (*n* = 34). _____

Analyze and/or use patterns or relations.

61. Find the 20th term in the arithmetic sequence –4, 1, 6, 11, 16,...

A.) 95
B.) 72
C.) 96
D.) 91

62. Determine whether the sequence appears to be an arithmetic sequence. If so, find the common difference and the next three terms in the sequence.

–5, –11, –17, –23, –29, . . .

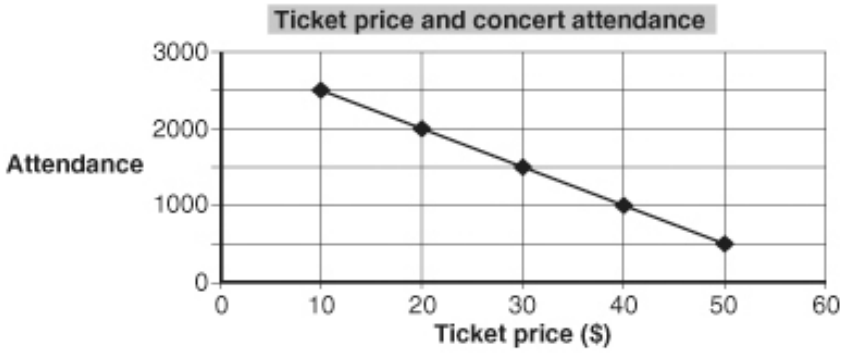
A.) Yes; common difference 6; next three terms are –23, –17, –11
B.) Not an arithmetic sequence
C.) Yes; common difference –7; next three terms are –36, –43, –50
D.) Yes; common difference –6; next 3 terms are –35, –41, –47

63. Sylvie is going on vacation. She has already driven 60 miles in one hour. Her average speed for the rest of the trip is 57 miles per hour. How far will Sylvie have driven 7 hours later?

A.) 402 miles
B.) 420 miles
C.) 459 miles
D.) 399 miles

Topic 2 – Patterns in data (graphic)

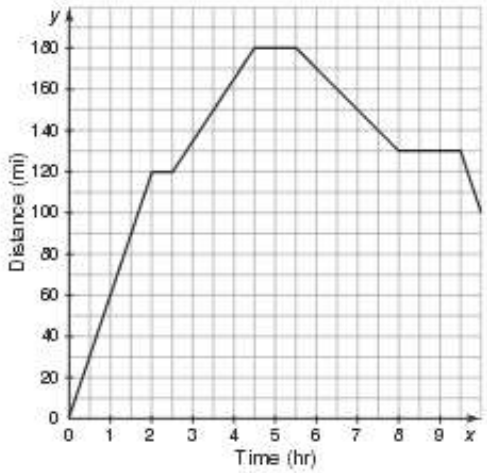
Jack drew this graph to show how attendance at concerts is related to ticket price.



Which statement best describes the graph?

- As the ticket price goes up, attendance goes down.
- As the ticket price goes up, attendance goes up.
- As the ticket price goes down, attendance goes down.
- As the ticket price goes down, attendance stays the same.

The graph shown represents Greg's distance from home after driving for x hours.



1. Analyze the graph between 0 and 2 hours.

a. How far from home was Greg after driving for 2 hours?

b. How fast did Greg drive during this time? Explain your reasoning.

c. How do you know that Greg traveled at the same rate for the first two hours? Describe in terms of the graph.

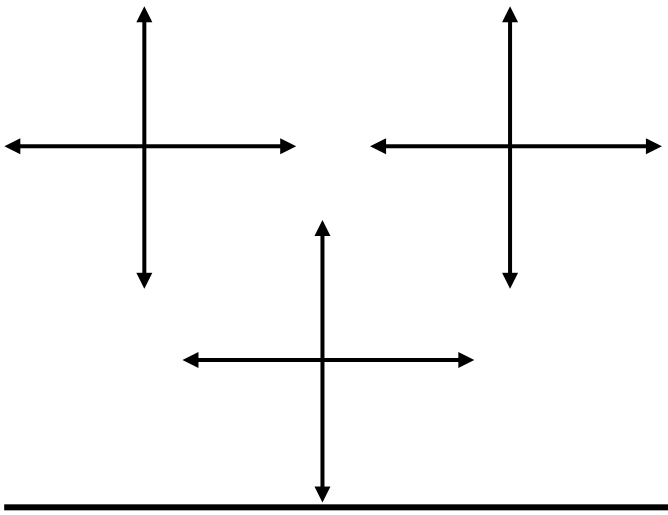
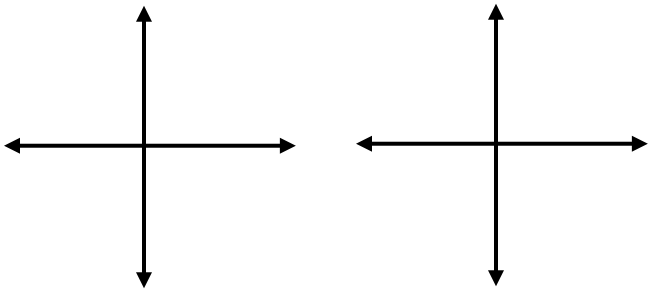
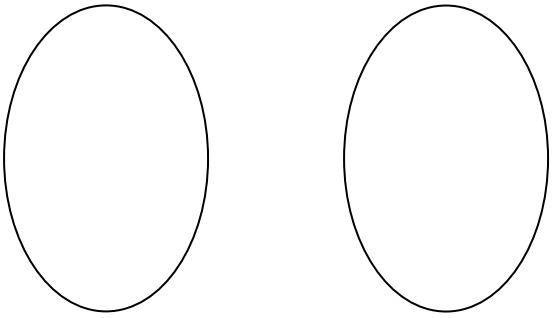
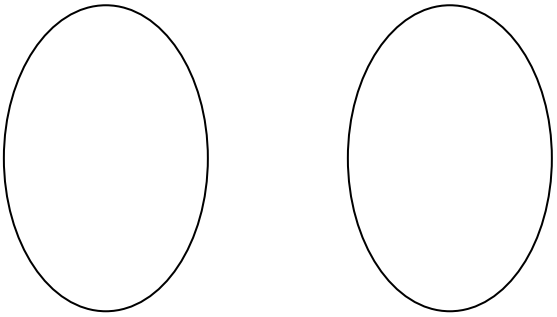
2. Analyze the graph between 2 and 2.5 hours.

a. How far did Greg travel from home between 2 and 2.5 hours?

b. How fast did he travel during this time? Explain your reasoning.

c. Describe the shape of the graph between 2 and 2.5 hours.

Topic 3 – Relation vs. Function

Functions	Not Functions
(Ordered Pairs)	(Ordered Pairs)
(Graphs) 	(Graphs) 
(Mapping Diagram) 	(Mapping Diagram) 
(Table of Values) X | Y | | | | | |	(Table of Values) X | Y | | | | | |

64. Do the ordered pairs below represent a relation, a function, both a relation and a function, or neither a relation nor a function?

(-3,5) , (3,-7) , (7,-15) , (9,-19)

A.) function only
B.) neither a relation nor a function
C.) both a relation and a function
D.) relation only

65. Which of the following tables represents a function?

A.

X	-12	-8	0	-8
Y	22	20	22	21

B.

X	-12	-8	0	3
Y	22	20	28	22

C.

X	-12	-8	-12	3
Y	22	22	28	21

D.

X	-12	-8	0	0
Y	22	20	22	21

66. Which of the following relations describes a function?

A.) { (2, 3), (3, 3), (4, 3), (5, 3) }
B.) { (-2, 0), (0, -2), (0, 2), (2, 0) }
C.) { (0, 0), (2, -2), (2, 2), (3, 3) }
D.) { (3, 3), (3, 4), (3, 5), (3, 6) }

Topic 4 – Domain and Range

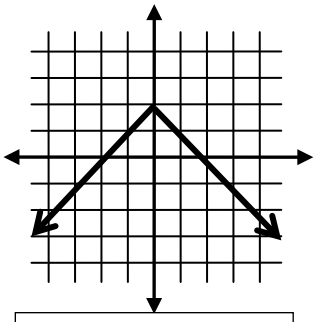
Definition of Domain (of a Relation or Function)

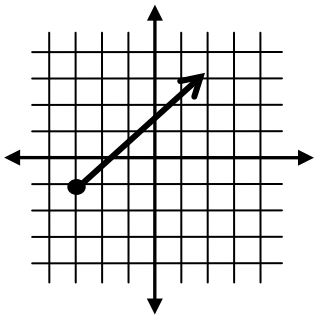
The set of all possible values of the _____ on which a _____ or _____ is allowed to operate. Also the _____ numbers in the _____ of a _____; the values of the __-coordinates in (x, y).

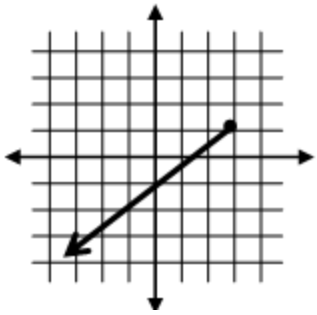
Definition of Range (of a Relation or Function)

The set of all possible values for the output (_____ variable) of a _____ or _____; the set of ____ numbers in the _____ of a _____ or _____; the values of the ___-coordinates in (x, y).

Examples: Identify the Domain and Range:







x	y
3	1
6	3
9	3
12	0

(-2,-3), (-1,1), (1,3), (2,-2), (3,-1).

input	2	4	6	8
output	-3	-4	-5	-6

68. The elements of a function of x are (7, 8), (70, 17), and (700, 107). What is the domain of the function?

A. {693}

B. {7, 8, 17, 70, 107, 700}

C. {7, 8, 70}

D. {7, 70, 70}

69. According to the table below, what is the range of the data?

input	output
3	9
4	16
5	25
6	36
7	49

A.) 12, 20, 30, 42, 56

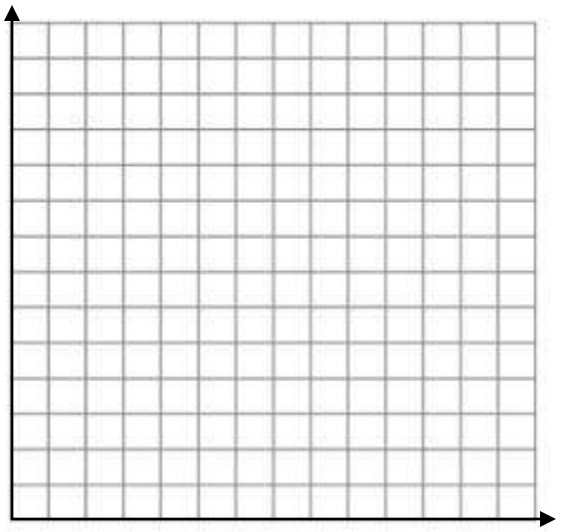
B.) 3, 4, 5, 6, 7

C.) 9, 16, 25, 36, 49

D.) 6, 8, 10, 12, 14

Topic 5 – Linear Functions

Words	**Equation**
A pizza restaurant charges $8 for pizzas and adds a $3 delivery fee. The cost *(c)*, in dollars to have any number of pizzas *(p)* delivered to a home can be described by a linear function.	Write an equation in slope-intercept form that models this situation.
Table Create a table that shows the prices of ordering 1, 2, 3, 4, or 5 pizzas.	**Graph**



Application 1:

A cleaning service charges an hourly fee plus a fixed starting price. The cost (C) in dollars to clean your house for a number of hours (h) is described by the function: $C = 10h + 50$.

- How much does the cleaning service charge per hour to clean? How do you know?
- If you have $150 budgeted for cleaning, for how many hours will you be able to hire the cleaning service?

Application 2:

The table shows the amount of water y in a tank after x minutes have elapsed.

x(minutes)	2	4	6	8
y(gallons)	80	60	40	20

Write an equation in slope intercept form to find amount of water (y) in gallons after a given number of minutes (x).

Using your equation, how long will it take for the tank to empty?

---

70. At PTHS, t-shirts sell for \$17.56 and cost \$12.01 to produce. Which equation represents p, the profit, in terms of x, the number of t-shirts sold?

A.) $p = \$17.56 + \$12.01x$
B.) $p = x(\$17.56 - \$12.01)$
C.) $p = \$17.56x - \$12.01$
D.) $p = x(\$17.56 + \$12.01)$

71. The population of a small town, P, as a function of time, t, in years past 1940 is:

$$P = 2{,}111 + 375\,t$$

For which of the following years was the population of the town 16,736 .

A.) 1979
B.) 1989
C.) 1939
D.) 1949

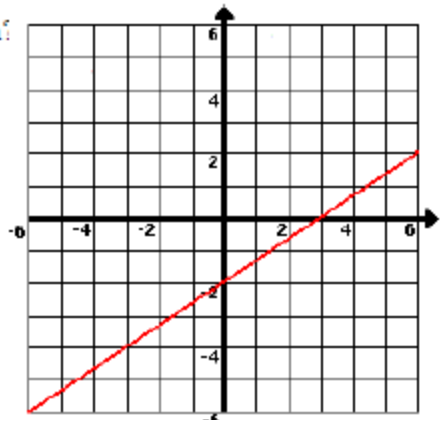
72. Alex is flying 2,075 miles. The table below shows the number of miles left to go after each hour of travel time.

Hour (x)	Miles (y)
1	1,881
2	1,687
3	1,493
4	1,299

If Alex continues at the current rate, how many miles will he have remaining after traveling for 7 hours?

A.) 911 miles
B.) 707 miles
C.) 523 miles
D.) 717 miles

73. Which of the following functions matches the graph?



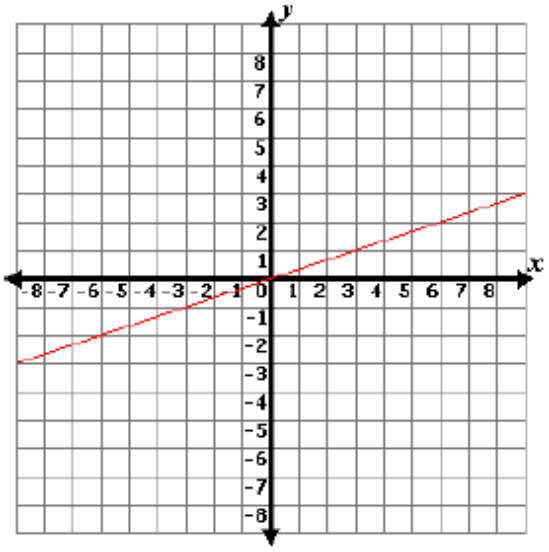
A.) $f(x) = -\frac{2}{3}x + 2$

B.) $f(x) = \frac{2}{3}x - 2$

C.) $f(x) = \frac{2}{3}x + 2$

D.) $f(x) = \frac{3}{2}x - 3$

74. Which of the following tables corresponds to the graph below?



A.)

x	-3	-2	-1	0	1
y	-1	$-2/3$	$-1/3$	$-2/3$	-1

B.)

x	-3	-2	-1	0	1
y	-1	$-2/3$	$-1/3$	0	$1/3$

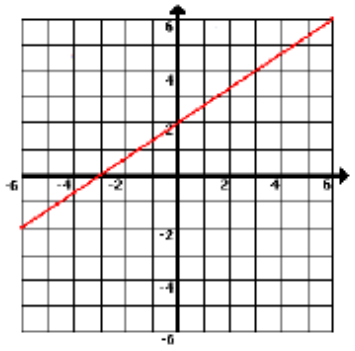
C.)

x	-3	-2	-1	0	1
y	-1	$-2/3$	$-1/3$	0	$-1/3$

D.)

x	-3	-2	-1	0	1
y	-1	$-2/3$	$1/3$	0	$1/3$

75. Which of the following functions matches the graph?



A.) $f(x) = -\frac{2}{3}x + 2$

B.) $f(x) = -\frac{3}{2}x + 3$

C.) $f(x) = \frac{3}{2}x + 3$

D.) $f(x) = \frac{2}{3}x + 2$

Topics 6 - 9 – Slope and Linear Equations

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Slope is denoted by the letter m.

$$m = \frac{\text{change in } y}{\text{change in } x} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

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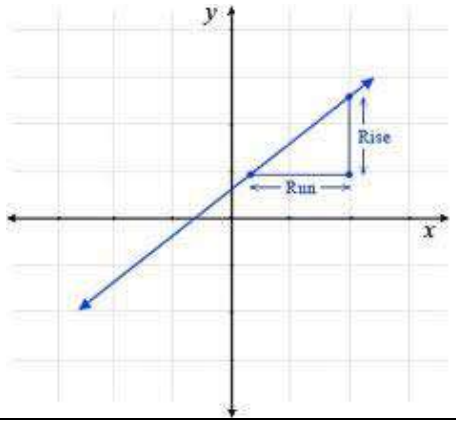

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Find the slope of the line that passes through:

(0, 3) and (5, -2)

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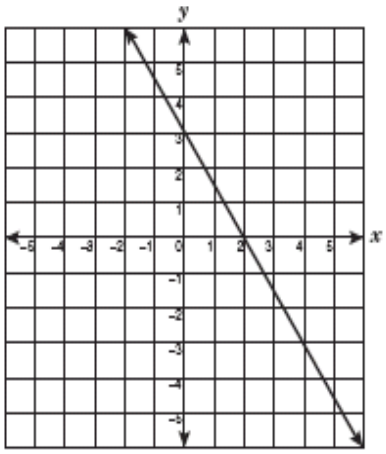
Find the slope of the line shown below.



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Rate of Change

A climber is on a hike. After 2 hours he is at an altitude of 400 feet. After 6 hours, he is at an altitude of 700 feet.

What is the average rate of change?

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Michael started a savings account with $300. After 4 weeks, he had $350 dollars, and after 9 weeks, he had $400.

What is the rate of change of money in his savings account per week?

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Julie got her Jetta fixed at John's Auto. John, being a man of few words, gave her the following information when she asked for an estimate:

"3 hours, $375. 5 hours, $495."

What is the rate of change?

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Mon E. Maker got a new job. He was given a bonus of $5,000 when he signed on with this job and promised a consistent monthly salary. After nine months he had earned a total of $29,500.

What is his *monthly* salary? (Round to the nearest hundredth)

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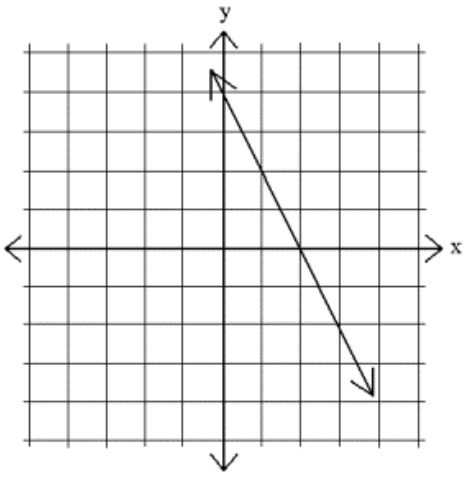
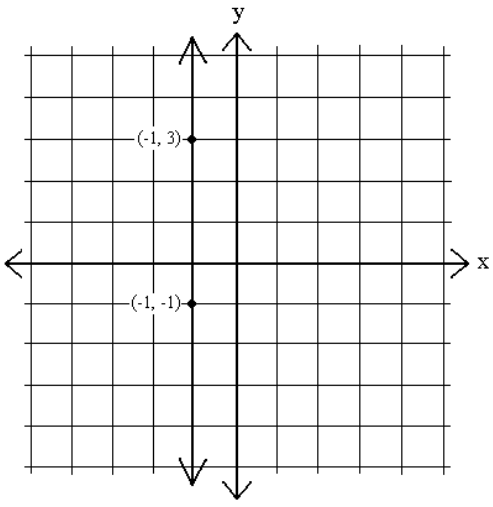
Slope-intercept form: y = mx + b **Point-Slope Form: $y-y_1 = m(x - x_1)$**

To write an equation in slope-intercept form, you must know the SLOPE and the Y-INTERCEPT!!

Write equations for each situation given below.

Slope: 3 y-intercept: -5 Equation - _____	Slope: ½ y-intercept: 7 Equation - _____
Slope: -2 passes through the point (4, 6) Equation - _____	Slope: ¾ passes through (-8, 1) Equation - _____
Passes through the points (-2, 1) and (3, 11) Equation - _____	Passes through the points (-3, -4) and (-2, 7) Equation - _____
 Slope : _____ y-intercept: _____ Equation - _____ Just for fun, what is the x-intercept?? _____	 Slope : _____ y-intercept: _____ Equation - _____

76. Which of the following situations represents a linear relationship?

A.) A radioactive substance loses half of its mass every 12 years.

B.) The cost of living increases in a certain area by 3 percent each year.

C.) The volume of a cubical gift box depends on the side length of the box.

D.) Someone is losing 5 pounds every month on her diet.

77. A pizza buffet has prepared 18 pizzas to place on the line at the beginning of lunch at 11:00 a.m. The equation $y = 14x + 18$ can be used to describe the total number of pizzas that have been placed out on the buffet line, where x represents every 9 minutes after 11:00 a.m. Which statement best describes the rate of change in the number of pizzas set out on the buffet?

A.) Every 18 minutes, 38 more pizzas were set out on the buffet.

B.) Every 18 minutes, 28 more pizzas were set out on the buffet.

C.) Every 9 minutes, 24 more pizzas were set out on the buffet.

D.) Every 18 minutes, 14 more pizzas were set out on the buffet.

78. Robert is making a map for Geography. In order to draw the map, he must create a scale converting the measured inches on the map to actual miles.

Length in Inches	1 1/4	1 1/2	1 3/4	2 1/4	2 1/2	2 3/4
Length in Miles	45	54	63	81	90	99

Use the table above to identify the scale he used for his map.

A.) 1 in. = 36 miles

B.) 1 in. = 12 miles

C.) 1 in. = 9 miles

D.) 1 in. = 18 miles

79. Write an equation in slope-intercept form for the line that passes through (3, 7) and (7, 4).

A.) $y = -\frac{3}{4}x + \frac{37}{4}$

B.) $y = \frac{3}{4}x + \frac{37}{4}$

C.) $y = -\frac{4}{3}x + \frac{37}{4}$

D.) $y = -\frac{3}{4}x + \frac{4}{37}$

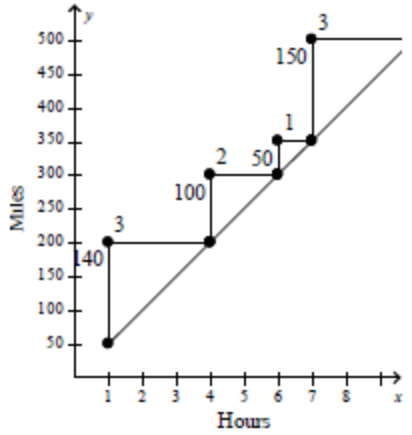
80. Find the x- and y-intercepts of $-x + 2y = 8$.

A.) x-intercept: -11, y-intercept: 4
B.) x-intercept: -11, y-intercept: 3
C.) x-intercept: -8, y-intercept: 3
D.) x-intercept: -8, y-intercept: 4

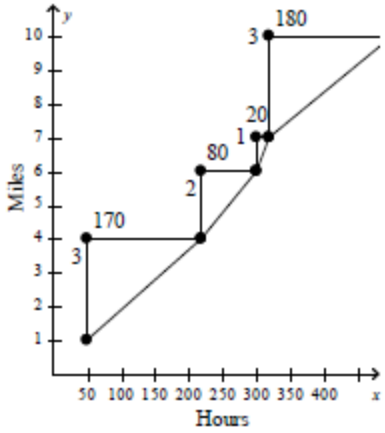
81. Jim drove for several hours, recording the distance he had traveled in miles. Graph the data and show the rates of change.

Hours	1	4	6	7	10
Miles	50	220	300	320	500

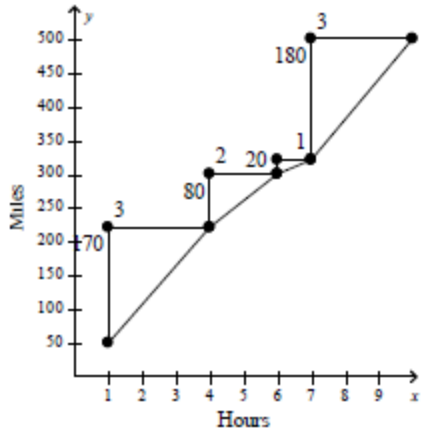
A.)



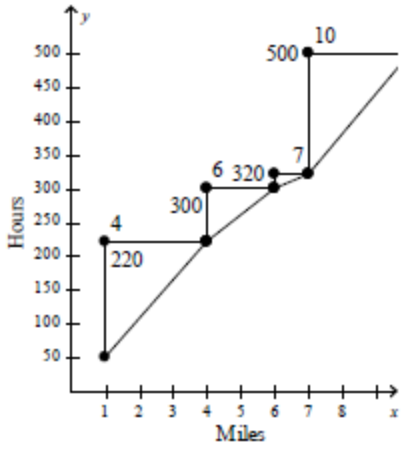
C.)



B.)

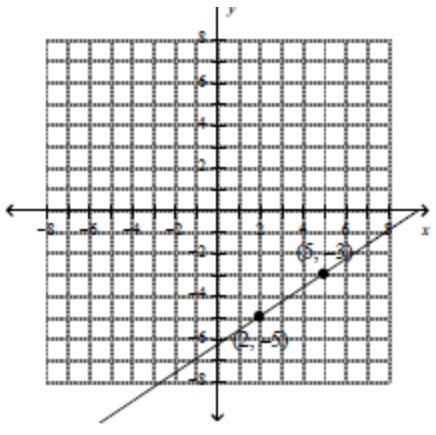


D.)

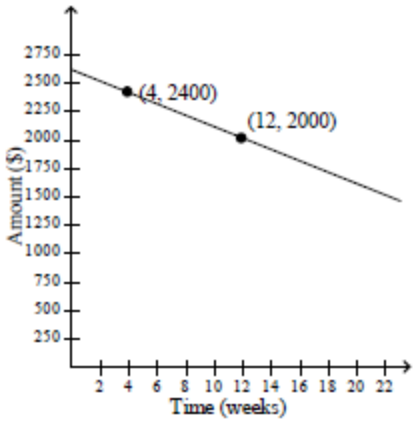


82. Find the slope of the line.

A.) $-\frac{3}{5}$
B.) $\frac{2}{3}$
C.) $\frac{3}{2}$
D.) $-\frac{2}{3}$



83. Tara creates a budget for her weekly expenses. The graph shows how much money is in the account at different times. Find the slope of the line. Then tell what rate the slope represents.



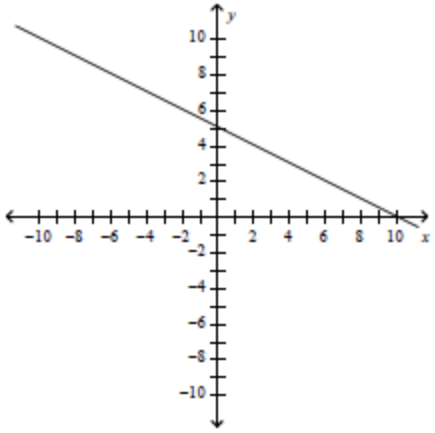
A.) The slope is −50. The slope means that the amount of money in the account is decreasing at a rate of $50 every week.

B.) The slope is −50. The slope means that the amount of money in the account is decreasing at a rate of $50 every 2 weeks.

C.) The slope is −0.02. The slope means that the amount of money in the account is decreasing at a rate of $0.02 every week.

D.) The slope is 50. The slope means that the amount of money in the account is increasing at a rate of $50 every week.

84. Find the x- and y-intercepts.



A.) x-intercept: –10, y-intercept: 5

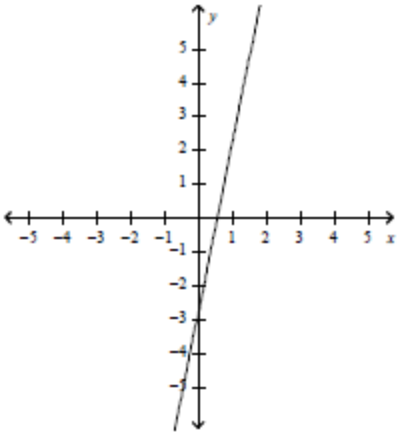
B.) x-intercept: 5, y-intercept: 10

C.) x-intercept: 10, y-intercept: –5

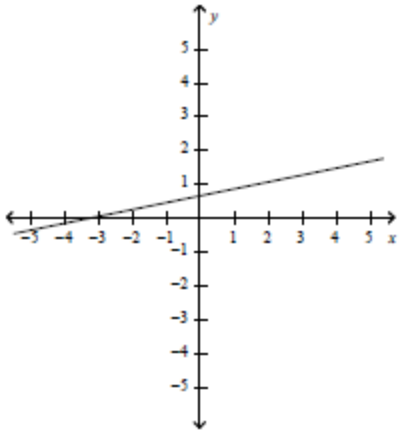
D.) x-intercept: 10, y-intercept: 5

85. Tell whether the function $y = 5x - 3$ is linear. If so, graph the function.

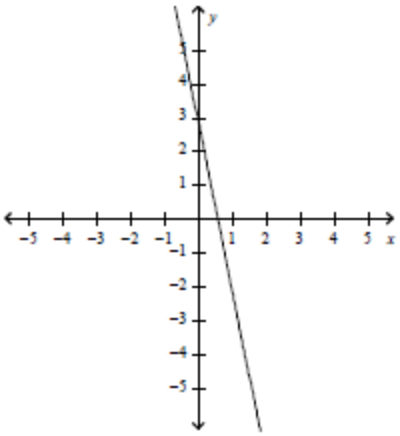
A.)



C.)



B.)

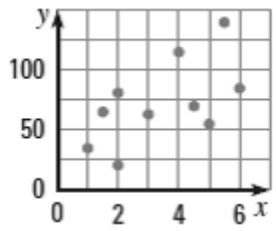


D.) Not a linear function.

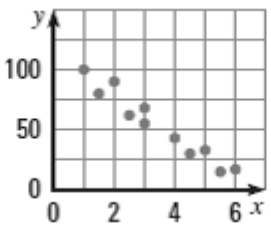
Topic 10 – Scatter Plots/Line of Best Fit

Describe the Correlation

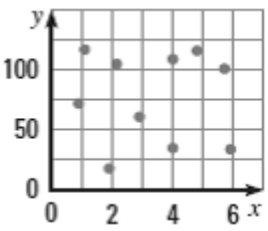
1.

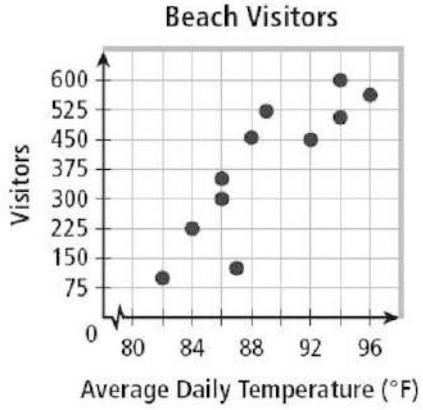


2.



3.





Describe the correlation.
As the average daily temperature _____, the number of beach visitors _____. Therefore, the data shows a _____ correlation.

Draw a line of best fit.

Estimate the number of people that will be at the beach on 90°F day .

Step 1 Draw a scatter plot of the data.

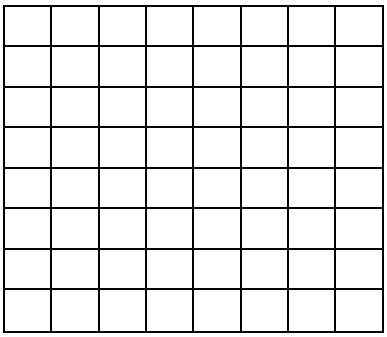
Step 2 Sketch the line that appears to follow most closely the trend given by the data points. There should be about as many points above the line as below it.

Step 3 Choose two points on the line, and estimate the coordinates of each point. These points do not have to be original data points.

Step 4 Write an equation of the line that passes through the two points from Step 3. This equation is a model for the data.

The table below shows Colby's hours of exercise and weight loss each week.

Hours of exercise (per week)	Weight loss (pounds)
1.3	0.5
3	2.8
5	3.5
2	2.5
4	3



Create a scatter plot for the data.

Describe the correlation.

Write an equation for a line of best fit.

REVIEW STEPS FOR GRAPHING CALCULATOR
STAT – EDIT – enter x-values in L1 and y-values in L2
(make sure the [y=] is clear and Plot 1 is turned on)
STAT →CALC – 4:LinReg(ax + b) – enter - enter

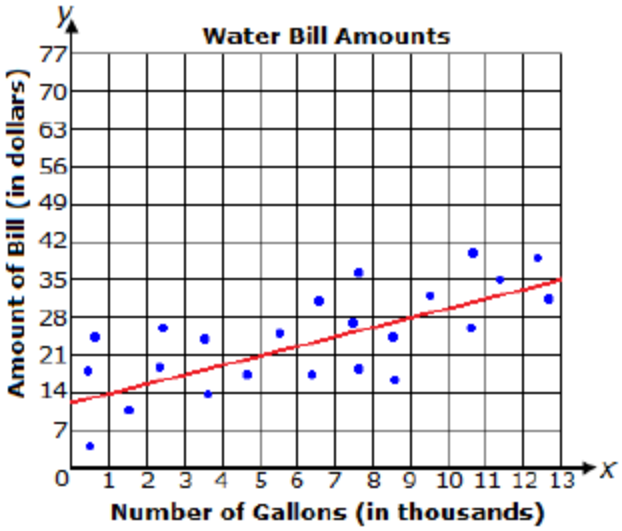
86. The graph shows a line of best fit for data collected on the amount of water bills in relation to the number of gallons of water used. What is the equation of the line of best fit?

A.) $y = \frac{1}{4}x + \frac{49}{4}$

B.) $y = \frac{7}{4{,}000}x + \frac{49}{4}$

C.) $y = -\frac{1}{4}x + \frac{49}{4}$

D.) $y = -\frac{7}{4{,}000}x + \frac{49}{4}$



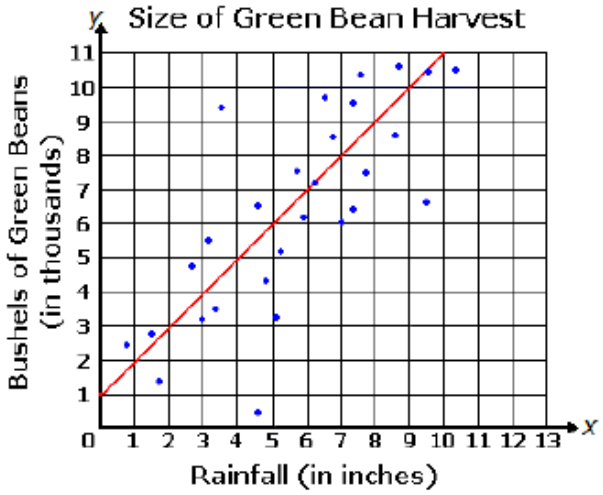
87. The graph shows a line of best fit for data collected on the size of green bean harvests in relation to the amount of rainfall. What is the equation of the line of best fit?

A.) y = x + 1,000

B.) y = x + 1

C.) y = 1,000x + 1

D.) y = 1,000x + 1,000



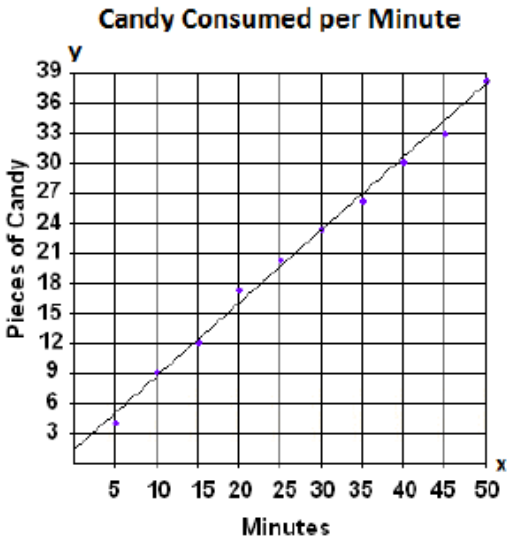
88. Which of the following equations represents the line that is drawn below?

A.) y = 0.72x + 1.4

B.) y = 0.72x - 1.4

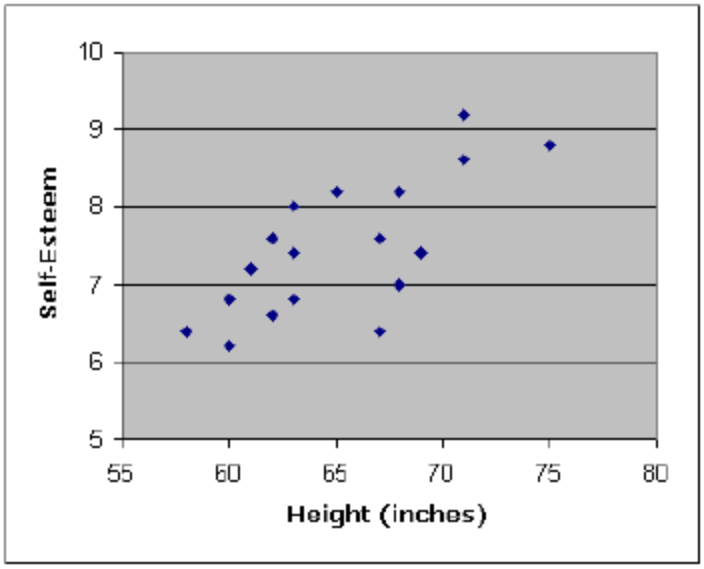
C.) y = -0.72x - 1.4

D.) y = -0.72x + 1.4



94. The graph below shows the results of an analysis of a group of eighteen male students. Height is measured in inches and self-esteem is measured by taking the average of the student's responses on a survey (where 1 means lowest self-esteem and 10 means highest self-esteem).

A.



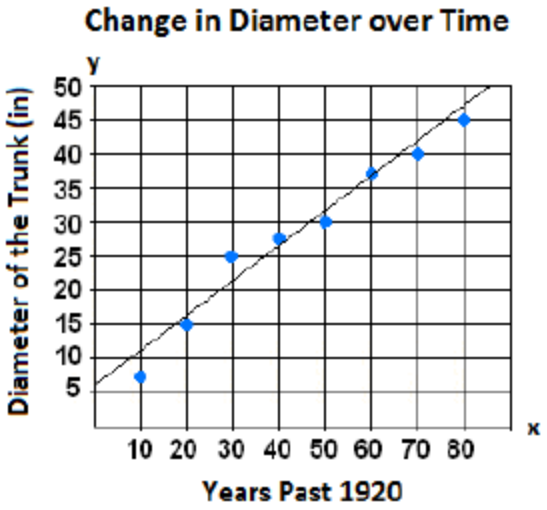
A.) As an individual's height increases, self-esteem decreases.
B.) There is no relationship between an individual's height and self-esteem.
C.) As an individual's height decreases, self-esteem increases.
D.) As an individual's height increases, self-esteem increases.

99. Crystal's grandmother planted a tree on the farm in 1920. She measured the tree trunk's diameter every 10 years and recorded the measurements. The scatter plot below shows the progress of the diameter. (The year 1930 is equivalent to 10 on the graph.)

$$y = 0.507x + 5.543$$

Looking at the line of best fit equation shown below the graph, what will be the approximate diameter of the tree in 2010?

A.) 56.243 inches
B.) 46.103 inches
C.) 45.63 inches
D.) 51.173 inches



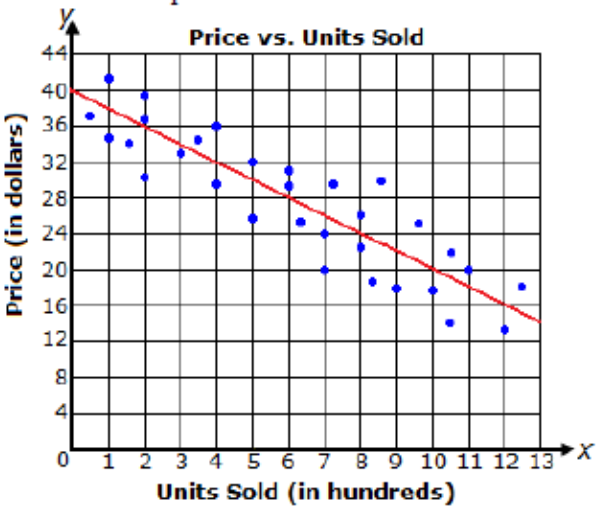
98. The graph above shows a line of best fit for data collected on the price of a unit in relation to the number of units sold. What is the equation of the line of best fit?

A.) $y = -\frac{1}{2}x + 40$

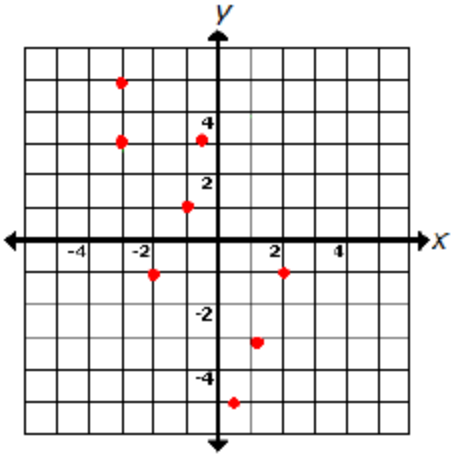
B.) $y = -\frac{1}{50}x + 10$

C.) $y = -\frac{1}{50}x + 40$

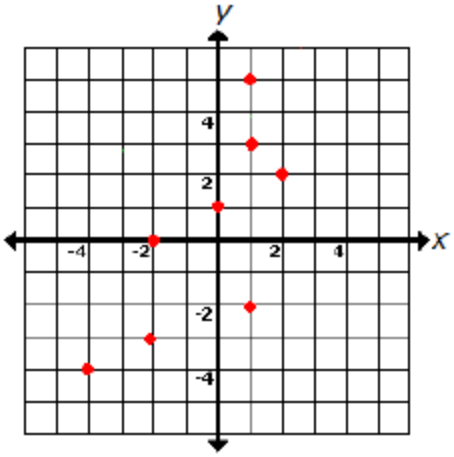
D.) None of the above



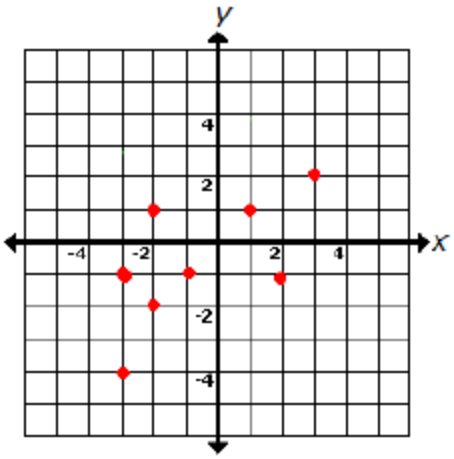
100. Which scatterplot most likely has a line of best fit represented by $y = 2x + 1$?



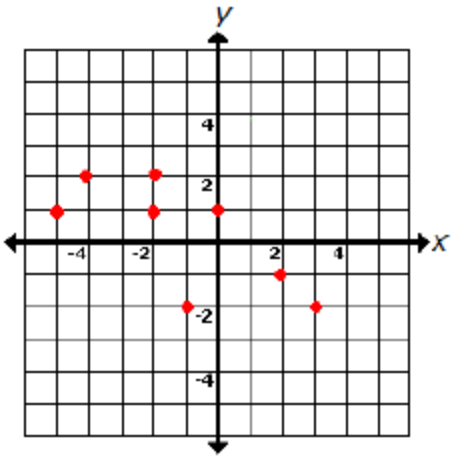
W.



X.



Y.



Z.

A.) W

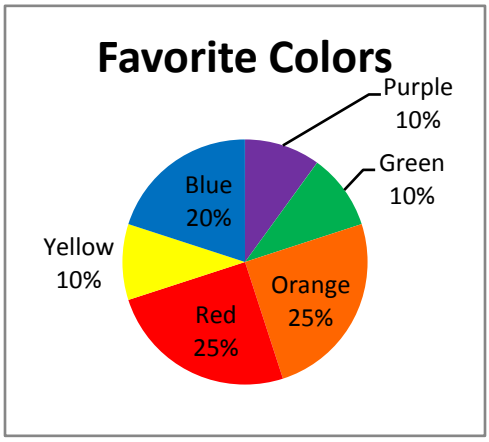
B.) X

C.) Y

D.) Z

Topic 11 – Circle Graphs/ Line Graphs/ Bar Graphs

Circle Graphs



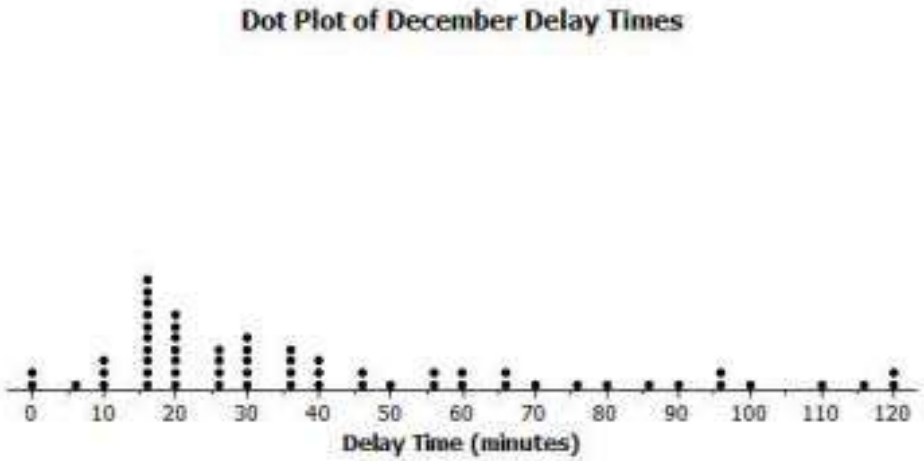
Suppose the data in the circle graph represents a sample of 500 students.

What number of students listed blue as their favorite color?

_____

Line Graphs (Dot Plot)

Example: The dot plot below shows the delay times for sixty flights during December 2013.



What is the maximum amount of time that a flight was delayed? _____

What is the minimum amount of time that a flight was delayed? _____

What is the range for the data? _____

What is the median for the data? _____

Bar Graphs

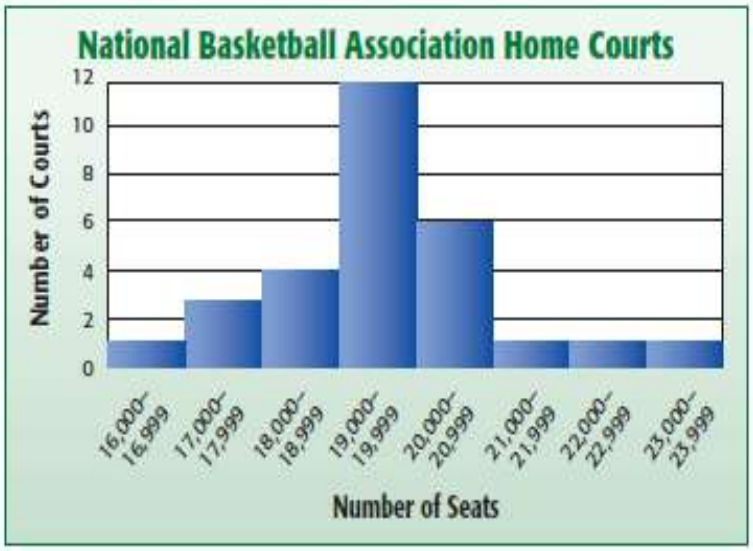
What interval represents the most number of courts?

How many courts have less than 20,000 seats?

How many courts have between 17,000 and 19,000 seats?

How many courts have at most 20,000 seats?

How many courts have at least 21,000 seats?



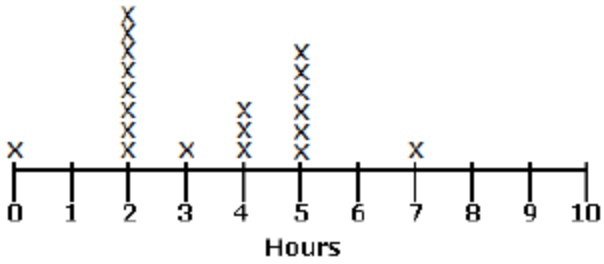
92. The line plot below shows the number of hours each student in Ms. Smith's class exercise each week. What is the median of the data in the graph?

A.) 3.7 hours

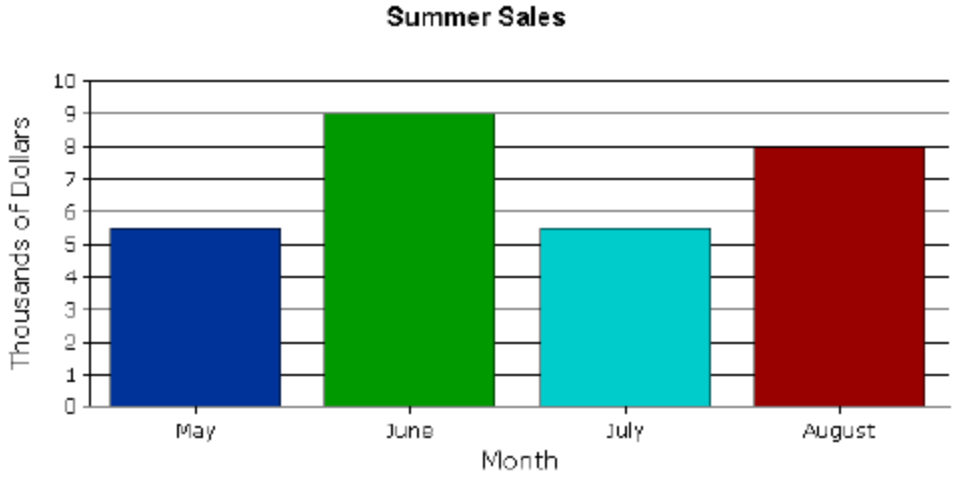
B.) 3.4 hours

C.) 2.5 hours

D.) 3.5 hours



93. A company made a bar graph showing the amount of sales for each month in thousands of dollars. Which is the closest to the mean amount of sales for the 4-month period?



A.) $7500

B.) $7625

C.) $7000

D.) $6500

Topic 12 – Mean, Median, Mode

Mean -

Median -

Mode -

1. 18, 24, 17, 21, 24, 16, 29, 18

Mean: _____ Median: _____ Mode: _____

2. Cassandra's Candles sold the following number of candles over the last 6 days: 25, 48, 25, 33, 57, 50. What was the average number of candles sold each day?

3. Chad recently launched a new website. In the past six days, he has recorded the following number of daily hits: 37, 29, 37, 56, 45, 38. He is hoping at week's end to have an average number of 40 hits per day. To achieve this, how many hits must he have on the final day of the week?

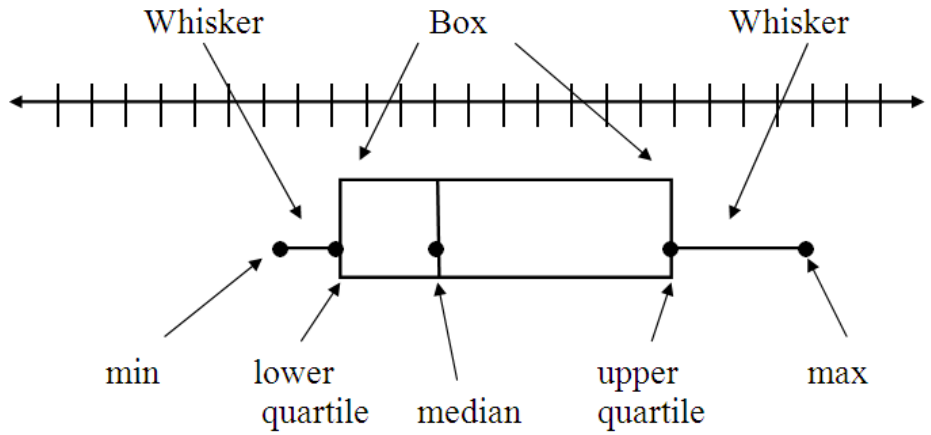
4. The team scored the following number of runs in their games this season:

6, 2, 5, 9, 11, 4, 5, 8,6,7,5

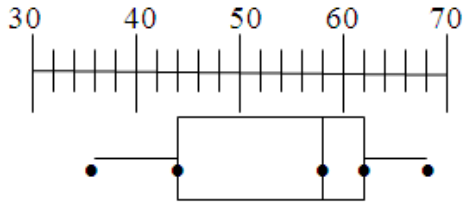
If they want to end the season with an average of 6 runs per game, how many runs must they score in their final game of the season?

Topic 13 – Box and Whisker Plots

Box-and-Whisker Plot: an easy way to graph data on a number line using a five number summary.



Number of mp3 players sold per month at Woolworth's.



1. According to the box-and-whisker plot above, what is the upper quartile of mp3 players sold at Woolworth's in a month?

a) 44
b) 36
c) 68
d) 62

2. What is the median number of mp3 players sold at Woolworth's?

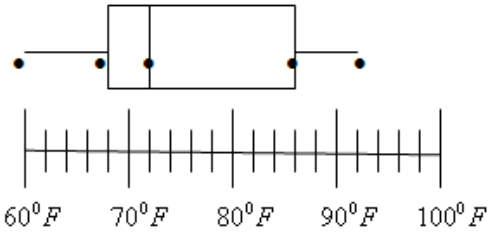
a) 44
b) 68
c) 58
d) 36

3. What is the lower quartile of mp3 players sold at Woolworth's?

a) 62
b) 68
c) 44
d) 36

The box-and-whisker plot below represents the daily high temperatures at a beach in April.

Daily High Temperatures



4. What was the median daily high temperature?

a) 68^0F
b) 72^0F
c) 86^0F
d) 92^0F

5. What temperature represents the upper quartile?

a) 68^0F
b) 72^0F
c) 86^0F
d) 92^0F

Use the data to make a Box and Whisker Plot:
{61, 50, 54, 54, 51, 57, 65, 51, 61, 49, 55, 64, 43, 65, 80, 72, 49, 57}

List the data in order from least to greatest.

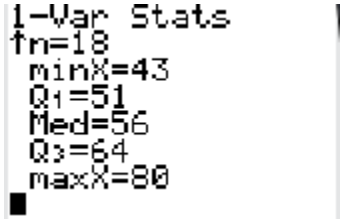
Find the median of the data.

Find the upper and lower quartiles.

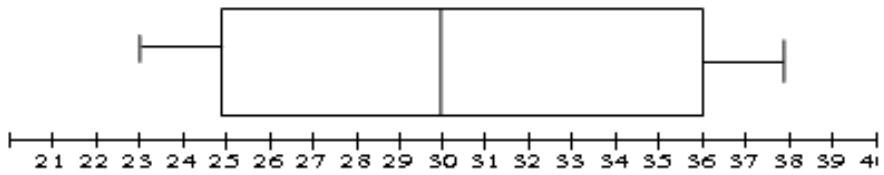
Draw number line and plot the 5 number summary.

GRAPHING CALCULATOR STEPS

STAT – EDIT – enter data into L1
STAT → CALC – 1-VarStats – enter – enter
Scroll down to see the 5 number summary!!



3. *Use the Box and Whisker plot below to answer the following questions:*



A) What is the Range?

B) What is the Interquartile range?

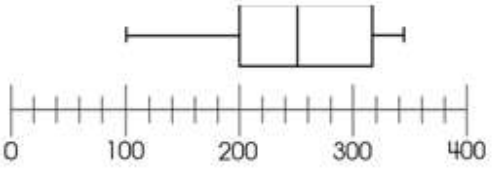
C) What is the Median?

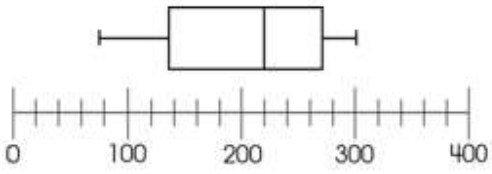
D) What percent of the data is between 33 and 36?

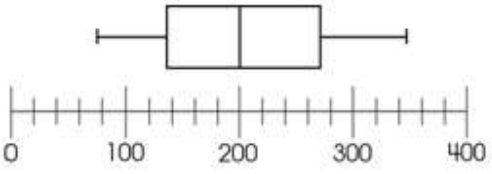
E) What is the First Quartile?

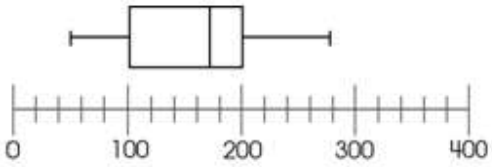
F) What is the 5-number summery?

Which box-and-whisker plot represents a situation where 75% of the data is 200 or less?

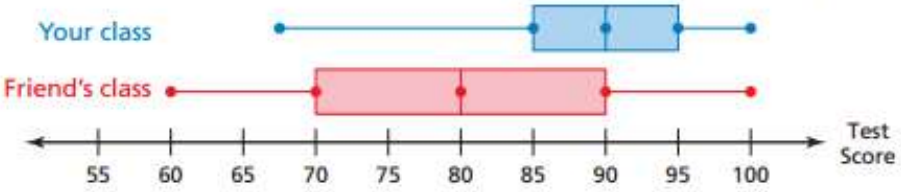
A. 

B. 

C. 

D. 

Which statement is true about the double box-and-whisker plot?



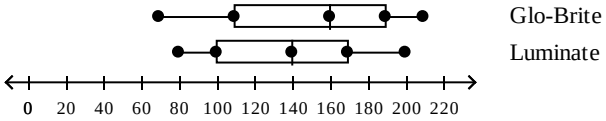
(A) Half of the test scores in your class are between 85 and 100.

(B) 25% of the test scores in your friend's class are 80 or above.

(C) The medians are the same for both classes.

(D) The test scores in your friend's class are more spread out than the test scores in your class.

The box-and-whisker plot shows the lifespan, in days, of two different brands of 60-watt light bulbs. Which data set has a greater median? About how much greater is the median of that data set?



a. Glo-Brite has a greater median by about 20 days.
b. Glo brite has a greater median by about 50 days.
c. Luminate has a greater median by about 40 days.
d. Luminate has a greater median by about 20 days.

Topic 14 – Stem and Leaf Plots

Constructing a stem-and-leaf plot:

The data: Math test scores out of 50 points: 35, 36, 38, 40, 42, 42, 44, 45, 45, 47, 48, 49, 50, 50, 50.

<table>
<tr><td>Writing the data in numerical order may help to organize the data, but is NOT a required step. Ordering can be done later.</td><td>35, 36, 38, 40, 42, 42, 44, 45, 45, 47, 48, 49, 50, 50, 50</td></tr>
<tr><td>Separate each number into a stem and a leaf. Since these are two digit numbers, the tens digit is the stem and the units digit is the leaf.</td><td>The number 38 would be represented as
<table><tr><th>Stem</th><th>Leaf</th></tr><tr><td>3</td><td>8</td></tr></table></td></tr>
<tr><td>Group the numbers with the same stems. List the stems in numerical order. (If your leaf values are not in increasing order, order them now.) Title the graph.</td><td><table><tr><th colspan="2">Math Test Scores
(out of 50 pts)</th></tr><tr><th>Stem</th><th>Leaf</th></tr><tr><td>3</td><td>5 6 8</td></tr><tr><td>4</td><td>0 2 2 4 5 5 7 8 9</td></tr><tr><td>5</td><td>0 0 0</td></tr></table></td></tr>
<tr><td>Prepare an appropriate key for the graph.</td><td>Key: 3 | 6 means 36</td></tr>
</table>

Example: A teacher asked 10 of her students how many books they had read in the last 12 months. Their answers were as follows: 12, 23, 19, 6, 10, 7, 15, 25, 21, 12 Prepare a stem and leaf plot for these data. **Tip:** The number 6 can be written as 06, which means that it has a stem of 0 and a leaf of 6.	

96. What is the range of the data shown in the stem-and-leaf plot above?

stem	leaf
749	3 3 4 5 7 9
750	1 1 1 2 4 5 6 7 8 8 8 9 9
751	1 3 3 3 4 6 8 9 9
752	1 2 2 3 3 3 4 7 8 9
753	1 1 2 4 5 6 8 8

A.) 45

B.) 5

C.) 48

D.) 38

97. The following stem-and-leaf plot shows the scores on the most recent math exam. What is the mode of these values?

5	0 1 3 5 8 9
6	3 5 6 6 7
7	1 2 2 7 9
8	0 3 3 3 4 6 8 8
9	2 4 4 7 7 9

A.) 97

B.) 88

C.) 83

D.) 66

Topic 15 – Probabilities of Compound Events

Find the following probabilities (independent events)

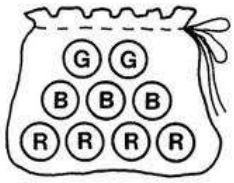
A. Two marbles are selected, **with replacement**. Find the probability of selecting a red and a blue marble.

B. Two marbles are selected, **with replacement**. Find the probability of selecting a blue and a red marble.

C. Two marbles are selected, **with replacement**. Find the probability of selecting two red marbles in a row.

D. You choose a card from a standard deck, **replace it**, and then choose another card. What is the probability that you draw two aces?

Find the following probabilities (dependent events)



A. Two marbles are selected, **without replacement**. Find the probability of selecting a red and a blue marble.

B. Two marbles are selected, **without replacement**. Find the probability of selecting a blue and a red marble.

C. Two marbles are selected, **without replacement**. Find the probability of selecting two red marbles in a row.

D. You choose a card from a standard deck**, do not replace it**, and then choose another card. What is the probability that you draw two aces?

15. Kayla has a standard deck of 52 cards and a six-sided die. What is the probability that she will pull a diamond from the deck of cards and roll a 2?

A. $\frac{3}{26}$

B. $\frac{1}{4}$

C. $\frac{1}{24}$

D. $\frac{1}{6}$

16. Marli has one bag of different colored, same-size chips. There are 4 blue chips, 5 red chips, and 3 black chips. What is the probability that she will pull a blue chip and without replacement pull another blue chip?

A. $\frac{1}{3}$

B. $\frac{3}{11}$

C. $\frac{1}{11}$

D. $\frac{1}{4}$

17. Katie is trick or treating. The man answering the door holds out two bags. In one bag, there are 3 bars of dark chocolate and 1 bar of white chocolate. In the other bag, there are 3 pieces of strawberry licorice, 1 piece of cherry licorice, and 1 piece of orange licorice. If Katie gets to randomly draw one piece of candy from each bag, what is the probability that she will get a bar of dark chocolate and a piece of cherry licorice?

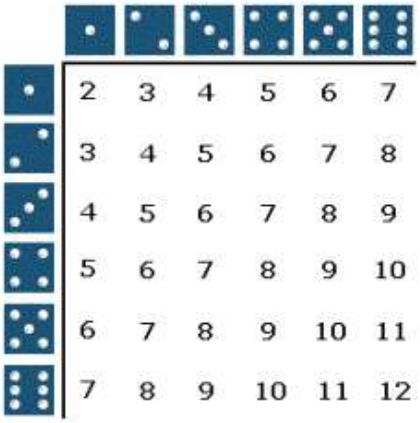
A. $\frac{9}{20}$

B. $\frac{3}{20}$

C. $\frac{4}{9}$

D. $\frac{1}{20}$

18. An experiment consists of rolling two fair dice and adding the dots on the two sides facing up. What is the probability that the sum of the dots is 6 or 9?



	2	3	4	5	6	7
	3	4	5	6	7	8
	4	5	6	7	8	9
	5	6	7	8	9	10
	6	7	8	9	10	11
	7	8	9	10	11	12

A. $\frac{1}{4}$

B. $\frac{2}{9}$

C. $\frac{1}{9}$

D. $\frac{1}{6}$

20. Bobby is taking a multiple-choice history test. He has decided to randomly guess on the first two questions. On each question there are 4 answer choices. What is the probability that he answers the first question correctly and the second question correctly?

A. $\frac{1}{16}$

B. $\frac{3}{16}$

C. $\frac{9}{16}$

D. $\frac{1}{4}$

101. 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 3?

A.) 1/18
C.) 1/9
B.) 1/12
D.) 1/2

102. Bobby is taking a multiple-choice history test. He has decided to randomly guess on the first two questions. On each question there are 4 answer choices. What is the probability that he answers the first question correctly and the second question correctly?

A.) 9/16
C.) 1/16
B.) 3/16
D.) 1/4

103. Holly is flipping a coin and pulling a marble from a bag. There are 4 white marbles, 2 blue marbles, and 5 green marbles, all of the same size, in the bag. What is the probability that the coin lands on heads and she pulls a green marble from the bag?

A.) 5/22
C.) 1/4
B.) 6/13
D.) 3/11