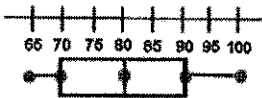
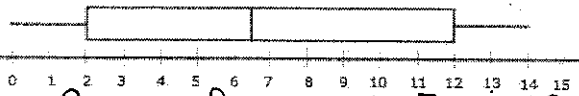


1. According to the box and whisker plot shown below, what is the minimum, first quartile, median, third quartile, and maximum value?



Min: 65 Q1: 70 Median: 80 Q3: 90 Max: 100 Range: 35 IQR: 20



Min: 0 Q1: 2 Median: 0.5 Q3: 12 Max: 14 Range: 14 IQR: 10

2. Roberto and Mary were comparing test scores in their math class. Roberto had three tests of 85, 95 and 77. Mary has scores of 95, 79 and 86. How do the student's ranges compare?

Roberto's  
 $R: 95 - 77 = 18$   
 $M: 95 - 79 = 16$   
Roberto's range is 2 pts higher than Mary's.

3. Carly earned test scores of 85 and 72. Jose had test scores of 70 and 93. Kristy had test scores of 95 and 67. How do the three students' means rank in order, high to low?

Jose, Kristy, Carlos

4. George's quiz grades are shown below.

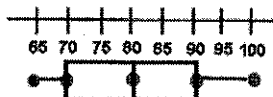
30, 65, 95, 92, 88, 80, 65, 95, 92, 88

George scored a 30 on his sixth quiz. What effect does this score have on the mean (increase or decrease), median (increase or decrease)?

5. An outlier will have a large effect on the

mean

6. The boxplot below represents exam scores.



Approximately what percentage of the test scores were between 70 and 100 percent?

75%

7. The prices of 10 football helmets are listed below:

\$45, \$60, \$52, \$68, \$45

\$50, \$65, \$45, \$52, \$68

How much greater, in dollars, is the median price than the mode of the prices listed?

45

\$7

8. The table shows the total earnings (wages and tips) of a food server for one day.

Hours worked	Wage
0	0
1	30
2	45
3	65
4	80
5	85

Based on the line of best fit for this data, which statement about the earnings for a server is the most reasonable?

$$y = 17x + 8.33$$

- A. The server earns \$15 per hour and they do not earn any money for working less than 1 hour
- B. The server earns \$14.50 per hour and they earn \$17.50 for working less than 1 hour
- C. The server earns \$15 per hour and they earn \$17.50 for working less than 1 hour
- D. The server earns \$14.50 per hour and they do not earn any money for working less than 1 hour

The server earns \$17 per hour and earns \$8.33 for working less than an hour.

9. John recorded the weight of six bicycle riders and their average speeds. The results are shown in the table below.

Weight (pounds)	Average Speed (mph)
120	22.6
132	21.2
138	21.0
106	24.1
105	23.8
146	20.8

Using a linear model, what is the meaning of the correlation coefficient in the context of the data?

- a. There is a strong negative correlation showing that the average speed decreases as the weight of the rider increases.
- b. There is a strong negative correlation showing that the average speed increases as the weight of the rider increases.
- c. There is a strong positive correlation showing that the average speed decreases as the weight of the rider increases.
- d. There is a strong positive correlation showing that the average speed increases as the weight of the rider increases.

$$r = -0.98$$

10. Which correlation coefficient would have the strongest correlation between variables?

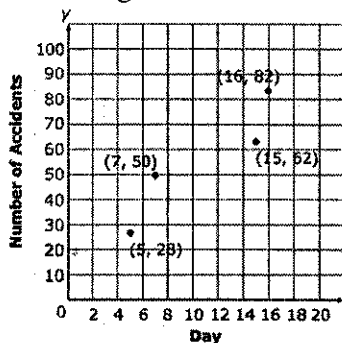
- a. 0.9
- b. 0.3
- c. -0.2
- d. -0.6

11. What is the equation that *best* models the data in the table below?

x	y
-2	3
1	5
3	7
6	9
10	12

$$y = .89x + 3.20$$

12. The scatterplot below shows the number of days the temperature was below  $20^\circ$  in 4 different cities and the number of weather-related car accidents in those cities during the month of January.



What is the line of best fit?

5	28
7	50
15	52
16	82

$$y = 3.73x + 15.40$$

13. The table below shows the arm span and heights 6 vertical jump contestants reached during a track and field competition.

Arm Span (cm)	Vertical Jump (cm)
160	325
133	402
162	366
154	288
199	321
201	286

What is the line of best fit?

$$y = -1.08x + 512.19$$

14. Which *best* describes the linear correlation between  $x$  and  $y$ ?

x	y
10	24.31
15	26.52
20	30.01
25	34.00
30	41.53
35	43.99

$$r = 0.98$$

15. Which statement best describes the association of two data sets with a correlation coefficient of -1?

- a. The data sets have a weak positive association.
- b. The data sets have a weak negative association.
- c. The data sets have a strong positive association.
- d. The data sets have a strong negative association.

- a. strong and positive
- c. strong and negative

- b. weak and positive
- d. weak and negative

16. Janine tested microwave ovens with different power levels to determine how long it would take each oven to bring two cups of room-temperature water to a boil. She recorded the time for each of four ovens in the table below.

**Time to Boil Water**

Microwave Power (watts) $X$	Time (seconds) $Y$
700	85
850	78
1000	70
1100	65

Based on the relationship shown in the table, which is the BEST prediction of the amount of time it would take to boil two cups of room-temperature water in a 1350-watt microwave oven?

- A. 49 seconds  
 B. 53 seconds  
 C. 58 seconds  
 D. 61 seconds

$$y = -.05x + 120.44$$

$$y = -.05(1350) + 120.44$$

$$y = 52.94$$

17. Use the following table to answer questions *parts a-g* (round to the nearest hundredth). The table below shows the Ohio resident population in selected years.

Let the year 1960 be represented with  $x=0$ .

Year	1960 0	1970 10	1980 20	1990 30	2000 40	2005 45	2010 50
Population (thousands)	9706	10652	10798	10847	11,353	11,478	11,576

- a. Find the equation of the line of best fit:  $y = 32.85x + 10000.54$
- b. Identify the slope:  $m = 32.85$
- c. What is the meaning of the slope? the pop. of Ohio increases by 32,850 people each year
- d. Identify the y-intercept:  $b = 10000.54$
- e. What is the meaning of the y-intercept? the 1st pop of Ohio in 1960 was 10,000,540.
- f. According to the data, what will the estimated resident population (y) be in 1993?  $x=33$   
 $y = 32.85(33) + 10000.54 = 11,084.59$  thousand
- g. Based on the equation of the line of best fit, predict the year (x) the population would reach 13,500 people.  
 $13500 = 32.85x + 10000.54$       1960 + 107  
 $3499.46 = 32.85x$       2067  
 $x = 106.5$

18. The table below shows the amount of time seven students studied for a test and their respective test scores.

Time Spent Studying	Test Score
25	77
0	72
10	80
30	85
60	96
75	98

Which describes the relationship between the time a student spent studying and their test score?

- A. There is a strong, positive correlation between study time and test scores.  
 B. There is a strong, negative correlation between study time and test scores.  
 C. There is a weak, positive correlation between study time and test scores.  
 D. There is a weak, negative correlation between study time and test scores.

$$r = 0.95$$

19. The table below shows the amounts James plans to receive at the end of each year from one of his investments.

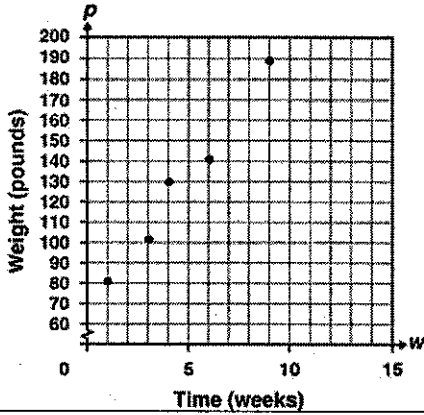
Number of Years	Amount (in dollars)
0	2000
1	2160
2	2320
3	2420
4	2500
5	2780
6	2940

What is the correlation coefficient, and which statement best describes this linear relationship?

- A. 0.01; weak negative
- B. 0.01; weak positive
- C. 0.99; strong negative
- D. 0.99; strong positive

20. A farmer bought a calf and plans to raise it for a county fair contest. The graph shows the relationship between the weight of the calf,  $p$ , in pounds, and the number of weeks,  $w$ , since the farmer bought the calf.

Growth of Calf



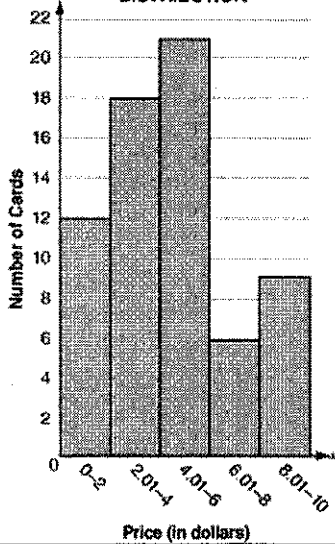
Which equation BEST represents the relationship between  $p$  and  $w$ ?

- a.  $p = 0.1w + 81$
- b.  $p = 13w + 67$
- c.  $p = 16w + 66$
- d.  $p = 21w + 81$

1	80
3	100
4	130
6	140
9	190

21. A card store sells greeting cards that range from less than \$1 to \$10. The histogram below shows the distribution of cards throughout several price ranges and was determined to be the most accurate way of representing these data.

CARD PRICE DISTRIBUTION



Which of these **most likely** describes the data shown in the histogram?

- A. The cards are grouped into five intervals according to price. The prices of the cards vary within each interval, and the highest frequency is 21.
- B. The cards are grouped into twenty-two intervals according to price. The prices of the cards vary within each interval, and the highest frequency is 10.
- C. The cards are grouped into five intervals according to price. The prices of the cards are limited to a few whole number values, and the highest frequency is 21.
- D. The cards are grouped into twenty-two intervals according to price. The prices of the cards are limited to a few whole number values, and the highest frequency is 10.