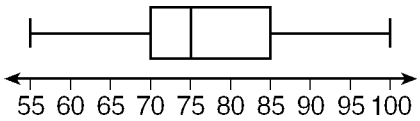
Name: _____
CC Algebra

Statistics Test Review

Questions 1 and 2 refer to the following:

The accompanying box-and-whisker plot represents the scores earned on a science test.



1) According to the diagram shown, what is the median score?

A) 70
B) 75
C) 85
D) 77

2) According to the diagram shown, what score represents the first quartile?

A) 70
B) 75
C) 100
D) 55

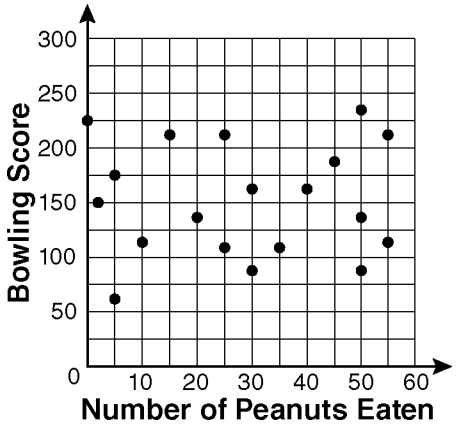
3) Mayken collected data about the size of the honors classes in her school building. This set of data is shown in the accompanying table.

Class Size	Frequency
8	1
10	3
14	2

Which statement about the range of this sample is true?

A) range < standard deviation
B) range < mean
C) range = mean
D) range > mean

4) The scatter plot below represents the relationship between the number of peanuts a student eats and the student's bowling score.



Which conclusion about the scatter plot is valid?

A) No bowlers eat peanuts.
B) Students who eat more peanuts have lower bowling scores.
C) Students who eat more peanuts have higher bowling scores.
D) There is almost no relationship between eating peanuts and bowling score.

5) What is the interquartile range for the data set {5, 4, 2, 5, 9, 3, 4, 5, 3, 1, 6, 7, 5, 8, 3, 7}?

A) 5
B) 8
C) 3
D) 4

6) Which of the following relationships can *best* be described as causal?

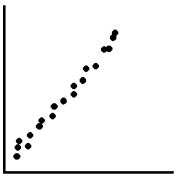
A) number of students in a class and number of students with brown hair
B) shoe size and running speed
C) number of correct answers on a test and test score
D) height and intelligence

7) Which scatter plot represents a strong negative correlation?

A) 

C) 

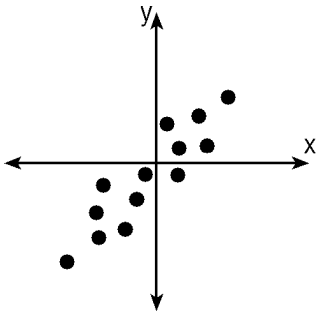
B) 

D) 

8) Which of the following statements shows a relationship that is correlated but *not* causal?

A) The amount of rainfall received and level of water in the lake.
B) The number of hours worked and how much money is made.
C) The number of lights left on each day and the amount of the electric bill.
D) The increase of warm, sunny days and the number of ice cream vendors visible.

9) The scatter plot below would most likely have a correlation coefficient of



A) 0.65
B) 1.0
C) -0.76
D) -1.0

10) Which one of the following would most likely have a positive linear correlation coefficient?

A) temperature of a refrigerator compared to the number of items inside of it
B) distance driven in a car compared to the hours spent driving
C) amount of money spent on baby food as a child ages
D) length of a driveway compared to number of cars owned

11) Beth's scores on the six Earth Science tests she took this semester are 100, 95, 55, 85, 75, and 100. For this population, how many scores are within one standard deviation of the mean? [*Use a graphing calculator to justify your answers.*]

Show your work.

Answer: _____ scores

12) Construct a box-and-whisker graph using the following data:

87, 94, 82, 78, 95, 91, 87, 83, 101, 83, 82, 77, 80, 102, 75

13) As shown in the table below, a person's target heart rate during exercise changes as the person gets older.

Age (years)	**Target Heart Rate** (beats per minute)
20	135
25	132
30	129
35	125
40	122
45	119
50	115

Which value represents the linear correlation coefficient, rounded to the nearest thousandth, between a person's age, in years, and that person's target heart rate, in beats per minute?

Answer: _____

14) The school newspaper surveyed the student body for an article about club membership. The table below shows the number of students in each grade level who belong to one or more clubs.

	1 Club	**2 Clubs**	**3 or More Clubs**
9th	90	33	12
10th	125	12	15
11th	87	22	18
12th	75	27	23

If there are 180 students in ninth grade, what percentage of the ninth grade students belong to more than one club?

Show your work.

Answer: _____%

15) The accompanying table shows the percent of the adult population that married before age 25 in several different years.

(**a**) Using the year as the independent variable, find the linear regression equation. [*Round the regression coefficients to the nearest hundredth.*]

(**b**) Using the equation you wrote in *part (a)*, estimate the percent of the adult population in the year 2009 that will marry before age 25, rounded to the nearest tenth of a percent.[*Show all work*.]

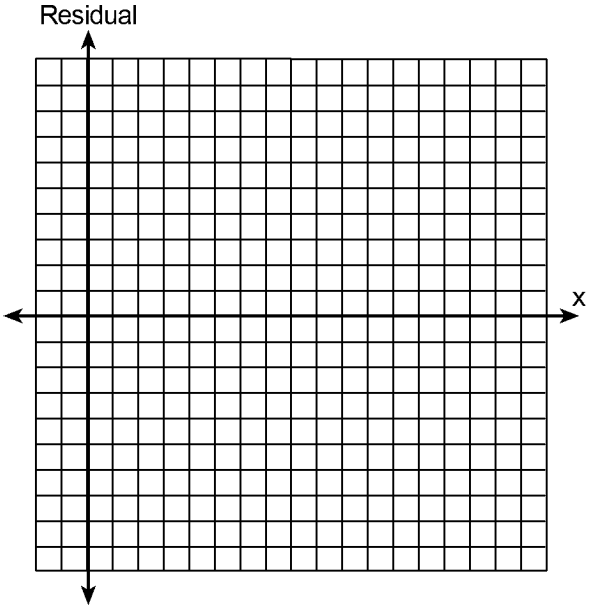
Year (x)	**Percent** (y)
1971	42.4
1976	37.4
1980	37.1
1984	34.1
1989	32.1
1993	28.8
1997	25.7
2000	25.5

16) The table below represents the residuals for a line of best fit.

x	2	3	3	4	6	7	8	9	9	10
Residual	2	1	–1	–2	–3	–2	–1	2	0	3

Part A

Plot these residuals on the set of axes below.



Part B

Using the plot, assess the fit of the line for these residuals and justify your answer.

_____

_____

17) Jean invested $380 in stocks. Over the next 5 years, the value of her investment grew, as shown in the accompanying table.

Years Since Investment (x)	Value of Stock, in Dollars (y)
0	380
1	395
2	411
3	427
4	445
5	462

Part A

Write the exponential regression equation for this set of data, rounding all values to two decimal places.

Answer: _____

Part B

Using the equation written in Part A, find the value of her stock, to the nearest dollar, 10 years after her initial purchase.

Show your work.

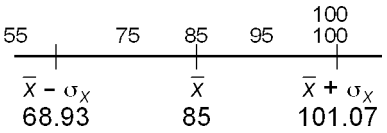
Answer: $_____

1) B 2) A 3) B 4) D 5) D

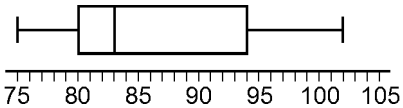
6) C 7) C 8) D 9) A 10) B

11) 5 scores

WORK SHOWN: $\bar{x} = 85$, $\sigma_x = 16.0728$,



12)



13) -0.999

14) 25%

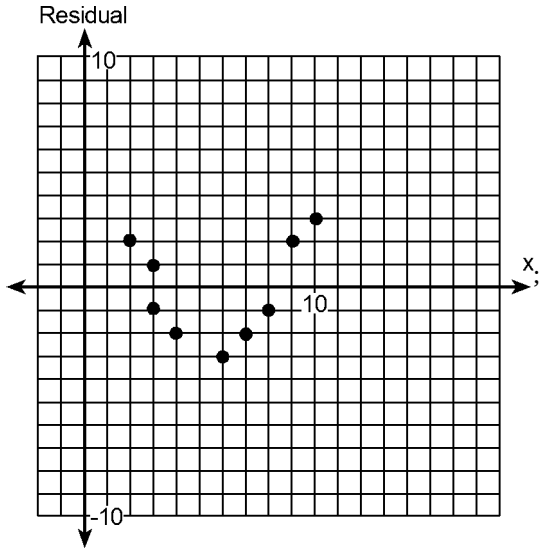
WORK SHOWN: $33 + 12 = 45$, $\frac{45}{180} = 0.25$, $0.25 \times 100 = 25\%$

15) (a) $y = -0.58x + 1{,}185.09$;

(b) 19.9%

WORK SHOWN: $y = -0.58x + 1{,}185.09$, $y = -0.58(2009) + 1{,}185.09 = -1{,}165.22 + 1{,}185.09 = 19.87 = 19.9$

16) <u>Part A</u>:



<u>Part B</u>: SAMPLE ANSWER: The line is a bad fit because there is no pattern in the function.

17) <u>Part A</u>: $y = 379.92(1.04)^x$;

<u>Part B</u>: \$562

WORK SHOWN: $y = 379.92(1.04)^{10} = \$562$