

Solve the following equation.

$$2x^2 - 5x = 12$$

$$2x^2 - 5x - 12 = 0$$

$$\rightarrow (2x + 3)(x - 4) = 0$$

$$\begin{array}{r} \cancel{2x^2} - 8x + 3x - 12 \\ \phantom{\cancel{2x^2}} - 5x - 12 \\ \hline 2x^2 - 5x - 12 \end{array}$$

$$\begin{array}{r} 24 \quad 2 \quad 12 \quad 4 \\ 1 \quad 12 \quad 26 \end{array}$$

$$\begin{array}{r} 2x + 3 = 0 \\ + 3 \\ \hline 2x = -3 \\ \div 2 \\ \hline x = -\frac{3}{2} \end{array}$$

$$\begin{array}{r} x - 4 = 0 \\ + 4 \\ \hline x = 4 \end{array}$$

$$\begin{array}{r} -8 \\ 3 \end{array}$$

$$x = -\frac{3}{2}$$

$$x = \frac{-3}{2}$$

$$x = 4$$

$$\left\{ -\frac{3}{2}, 4 \right\}$$

$$\begin{array}{r} \cancel{12} \\ \cancel{26} \\ 34 \end{array}$$

Test tomorrow on Data

Test Preparation

The table shows the shoe sizes and ages of seven students.

Student	Age (x)	Shoe Size (y)
1	12	8
2	14	7
3	12	6
4	15	8
5	13	6
6	14	7
7	15	8

- Approximately 14% of the students' ages are less than 1 year in difference from the age predicted by the linear model represented by the line-of-best fit. $\frac{6}{7}$
- Approximately 29% of the students' ages are more than 1 year in difference from the age predicted by the linear model represented by the line-of-best fit. $\frac{1}{7}$
- Approximately 86% of the students' ages are less than 1 year in difference from the age predicted by the linear model represented by the line-of-best fit. $\frac{6}{7}$
- Approximately 86% of the students' ages are more than 1 year in difference from the age predicted by the linear model represented by the line-of-best fit. $\frac{1}{7}$

If a least-squares regression equation predicts a y -value of 124.2 and the y -value in the actual data point is 130, what is the residual for this point?

- 5.8
- 5.8
- 127.1
- 154.2

residual
 actual - predicted
 $130 - 124.2$

Which variables are related by causation?

age and weight

What directly causes something else?

amount of exercise and calories burned

height and shoe size

reading ability and gender

Arrange the list of values in order from *weakest* correlation (top) to *strongest* correlation (bottom). Select each term, and drag up or down to change the position in the list.

The table shows the correlation coefficients for four *approximately* linear data sets.

Data Set	Correlation Coefficient
<i>J</i>	0.35
<i>K</i>	-0.78
<i>L</i>	0.67
<i>M</i>	-0.15

pretend all positive

List the data sets in order from *weakest* correlation (top) to *strongest* correlation (bottom).

-.15 M
0.35 J
0.67 L
-0.78 K

- The table displays the cost of playing golf at the Country Gold Club. The cost (C) includes an annual membership fee plus hourly fees per hour (h) of court time.

Number of Hours (h)	Cost of Playing in Dollars (C)
1	252
3	276
8	336
15	420
20	490

According to the values in the table, what is the hourly fee for playing?

table
 $y_c \sim m x_i + b$

slope
 $m = 12.4121$
\$12.41

- The number of calculators that Magnolia High School ordered each year from the year 2000 through 2008 is shown in the table. Let $x = 0$ represent the year 2000 .

According to the best-fit quadratic model, what is the approximate number of calculators they will need to order in the year 2010 ?

- 486
 512
 600
 704

x (years since 2000)	y (number of calculators ordered)
0	440
1	395
2	330
3	318
4	302
5	314
6	362
7	403
8	421

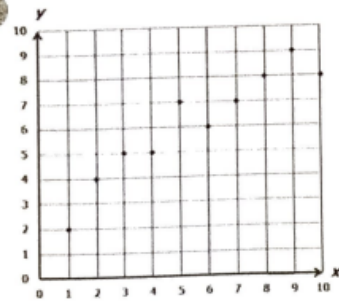
input
in
table

$$\begin{aligned}
 y_i &= ax_i^2 + bx_i + c \\
 &\approx 8x^2 - 64x + 439 \\
 &\approx 599
 \end{aligned}$$

Name ney

Scatter Plot and Data Analysis Study Guide

1. What is the equation of the line of best fit for the following scatter plot?



x	y
1	2
2	4
3	5
4	5
5	7
6	6
7	7
8	8
9	9
10	8

$y = mx + b$
 $y = .66x + 2.47$

2. A botanist lists the heights of a group of trees, to the nearest tenths of a meter, in an orchard.

Use the data to answer the following: 1.6, 2.7, 1.8, 1.2, 2.3, 2.4, 2.5, 2.0, 2.9

a. Mean 2.2

b. Median 2.3

c. IQR 2.6 - 1.7 = 0.9

d. standard deviation .52

$L = [1.6, 2.7, m]$

$\text{stats}(L)$

3. The salaries of a company are listed below. What would be the most appropriate measure of center for the salaries and why?

\$30,000; \$35,000; \$28,000; \$26,000; \$50,000; \$500,000; \$450,000; \$35,000; \$27,000; \$34,000

median b/c there are outliers

4. The manager of a store records the mode of payment of the 90 customers who visited his store today in the table below. What percentage of female customers used debit/credit cards?

	Pay by Cash	Pay by Debit/Credit Card
Male	32	24
Female	20	14

$20 + 14 = 34$
 $\frac{14}{34} = 41\%$

5. An insurance company surveys 900 high school seniors to determine who owns a car and works part-time. The company records its findings below.

	Own a car	Do not own a car
Part-time job	0.37 $.37(900) = 333$	0.15
No part-time job	0.25	0.23

Of the students who have a part-time job, how many own a car?

333

6. The table below shows the age and height of 8 boys.

Age (x years)	Height (y inches)
10	50
8	44
11	52
9	49
10	51
7	44
12	60
11	55

-1.31
-2.423
2.54
0.58

Find residuals

Which height is the furthest from the line of best fit for the data?

- a. 44 inches at 8 years
- b. 52 inches at 11 years
- c. 55 inches at 11 years
- d. 60 inches at 12 years

7. Which value of the correlation coefficient would suggest the weakest relationship between the variables?

- a. 0.9
- b. 0.7
- c. -0.1
- d. -0.8

8. Which variables are related by causation?

- a. age and weight
- b. amount of exercise and calories burned
- c. height and shoe size
- d. reading ability and gender

9. Which statement most accurately describes correlation?

- a. correlation can never exist if causation between two variables has previously been proved.
- b. correlation can only exist if causation between two variables has previously been proved.
- c. correlation is a way to measure the relationship between two variables.
- d. correlation is a way to prove that changes in one variable cause changes in another variable.

10. The blood pressures of several different mammals are shown in the table. If a giraffe, with blood pressure of 300 mm Hg is included, which statement is true?

Mammal	Dog	Cow	Cat	Pig	Monkey
Blood Pressure (mm Hg)	120	157	129	128	140

- a. the mean decreases
- b. the range increases
- c. the IQR decreases
- d. the standard deviation remains constant.

11. Eighty-five students took a test in their Algebra class yesterday. If the mean grade was 73% and the median grade was 80%, what is the likely description of the shape of the distribution?

- a. the distribution is normal
- b. the distribution is skewed right
- c. the distribution is skewed left
- d. the distribution is symmetric

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12. The manager of a bowling alley recorded the number of games bowled at the alley in the last two weeks.
18, 12, 5, 18, 15, 19, 4, 16, 15, 13, 16, 15

Which statement is correct?

- a. the value of the mean decreases if the outliers are excluded.
- b. the value of the standard deviation increases if the outliers are excluded.
- c. the value of the median increases by 0.5 if the outliers are excluded.
- d. the value of the mean remains the same even if the outliers are excluded.

$$\bar{x} = 13.8 \quad \bar{x} = 15.7 \text{ (without 5, 4)}$$

$$\text{med} = 15 \quad \text{med} = 15.5$$