

11.1 Find Measures of Central Tendency and Dispersion

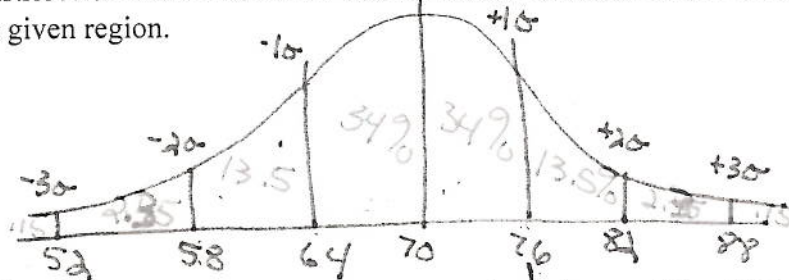
- List the 3 measures of central tendency. mean, median, mode
- List the 2 measures of dispersion. range, standard deviation
- Circle the data value that is an outlier in the following list. 10, 12, 14, 13, 34, 11, 16, 16
- The times for a 2 mile swim marathon are listed (in hours): 1.4, 1.2, 2, 3.7, 2.2, 4, 3.1, 2, 2.6
 - Find the mean: 2.47 median: 2.2 mode: 2 S.D.: .92 and range: 2.8
 - Another swimmer finishes the race in 8 hours, include this outlier and find the new mean: 3.02 median: 2.4 mode: 2 S.D.: 1.87 and range: 6.8

11.2 Apply Transformations to Data

- The highs for a week in April last year, in Michigan are 42, 36, 45, 49, 56, 57, 58. Four years ago it was 8 degrees cooler every day.
 - Find the mean: 49 median: 49 mode: none S.D.: 7.82 and range: ~~18~~ 22 of the original temperatures.
 - Find the mean: 41 median: 41 mode: none S.D.: 7.82 and range: ~~18~~ 22 of the temperatures for the same week 4 years ago.
 - 10 years ago the temperatures were only half of what they are listed as above.
Find the mean: 24.5 median: 24.5 mode: none S.D.: 3.91 and range: ~~9~~ 11 of the temperatures from 10 years ago.
- The prices for various food items are listed: 11, 3, 5, 10, 9, 9, 2, 7, 4, 6. A week later all the food items listed become 15% off.
 - Find the mean: 6.6 median: 6.5 mode: 9 S.D.: 2.94 and range: 9 of the original food prices.
 - Find the mean: 5.61 median: 5.53 mode: 7.65 S.D.: 2.5 and range: 7.65 of the sale food prices.

11.3 Use Normal Distributions

7. A normal distribution has a mean of 70 and a standard deviation of 6. Find the percent of the data included in the given region.



a. Greater than 76.

b. between -3σ and 2σ .

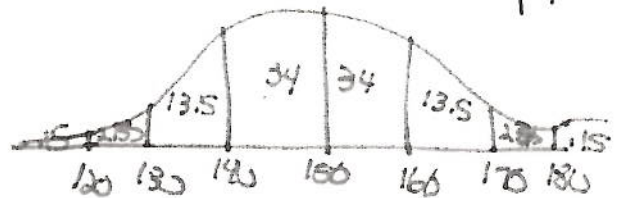
16.90

97.3590

c. $P(\bar{x} - 2\sigma \leq x \leq \bar{x} + 1\sigma)$ 81.590

8. The scores of an exam for entrance into a police training academy are normally distributed with a mean of 150 and a standard deviation of 10 points. Standard normal table p. 759

$\bar{x} = 150$
 $\sigma = 10$



a. What percent of candidates earned below 130 points? ~~0.235~~ 2.35%

b. What percent of candidates earned between 140 and 170 points? 81.5%

c. What is the lowest score someone in the top 2.5% of candidates could have received on their test? 170

d. What percent chance scoring 154 or greater? 134 or below?
 $z = \frac{154 - 150}{10} = 0.4 \rightarrow .6554$ $100\% - 66\%$ $z = \frac{134 - 150}{10} = -1.6$ z score .0548
 (34%) $\approx 55\%$

11.4 Select and Draw Conclusions from Samples

In 9 and 10 Identify the type of sample described. Then tell if the sample is biased or not.

9. Honda (the car company) wants to know if car owners believe their car is reliable. The company randomly selects 1020 car owners and mails out a survey to each one.

Random-biased! self-selected biased

10. A grocery store wants to know which day of the week consumers prefer to do their grocery shopping. Everyone who shops at the store on Friday is asked which day of the week they prefer to do their grocery shopping.

Systematic, biased

11. In a survey of 504 people in the US, about 11% said that the influx of new technologies such as computers has left them feeling overwhelmed.

a. What is the margin of error for the survey? Round your answer to the nearest tenth of a percent.

4.5%

b. Give an interval that is likely to contain the exact percent of all people in the US who feel overwhelmed by the influx of new technologies.

6.5% - 15.5%

12. A survey of 1250 kids ages 8-18 showed that 68% of them have a TV in their bedroom.

a. What is the margin of error for the survey?

2.8%

b. Give an interval that is likely to contain the exact percent of all kids ages 8 to 18 who have a TV in their bedroom.

65.2% - 70.8%

c. About how many kids ages 8 to 18 should be surveyed to have a margin of error of 2%?

2500 people

11.5 Choose the Best Model for Two-Variable Data

13. Use a graphing calculator to find a model for the data.

x	10	20	30	40	50	60	70	80
y	23.1	28.9	34.9	43.7	53.2	66.5	80.8	99.3

L .9616

Q .9994

C .99984

E .99975

P .9213

$$y = .000006x^3 + .002x^2 + .43x + 18.59$$