

Ch 3. Tools for Analyzing Data

Sec. 3.1 - Graphical displays of Data.

1. Find your team roster and record the weights of each player on your team.
Create a Histogram with an appropriate bin width of your team weights. Use a spreadsheet.
2. Describe the shape of the distribution. Ie. U-shaped, Uniform ... Explain.

Sec 3.2 - Measures of Central Tendencies.

3. Find the mean , median and mode of that grouped data. From question 1.
4. Calculate the standard deviation of the grouped data from question 1 by using the following formula:

$$\sigma = \sqrt{\frac{\sum f_i (x - \bar{x})^2}{n}}$$

Sec. 3.3 Measures of Spread

5. Using your RB and another team's RB and record the total number of yards each RB ran in each of the 16 games that they played. Assuming they played every game. Look under the players Game Logs.
Create a chart to display the data. Ie. Pg. 165
6. Find the Range, IQR, Q1, Q2 and Q3 and standard deviation for both RB's.
7. Which RB was more consistent? Why? Use standard deviations.

Sec. 3.4 Normal Distribution

8. Assuming that the team weights form a Normal distribution.
 - a) Find the mean and standard deviation.
 - b) Find the Q1 and Q3 values.
 - c) Find the z-score for three values x_1 , x_2 and x_3 , where x_1 is less than Q1 , x_2 is between Q1 and Q3 but not equal to Q2 and x_3 is above Q3.
 - d) Calculate the percentage of players that are below x_1 , x_2 and x_3 .

Sec 3.5 Mathematical Index

9. Use the following QB rating formula to rank your QB amongst 10 other quarterbacks.

NFL Quarterback Rating Formula (National Football League)

$$a = (((\text{Comp}/\text{Att}) * 100) - 30) / 20$$

$$b = ((\text{TDS}/\text{Att}) * 100) / 5$$

$$c = (9.5 - ((\text{Int}/\text{Att}) * 100)) / 4$$

$$d = ((\text{Yards}/\text{Att}) - 3) / 4$$

a, b, c and d can not be greater than 2.375 or less than zero.

$$\text{QB Rating} = (a + b + c + d) / .06$$