



Math Virtual Learning

Algebra IIB

The Data Unit - What is Normal?

May 7, 2020



Algebra IIB

Lesson: May 7, 2020

Objective/Learning Target: Students will be able to use the empirical rule to calculate the intervals of the data's distribution

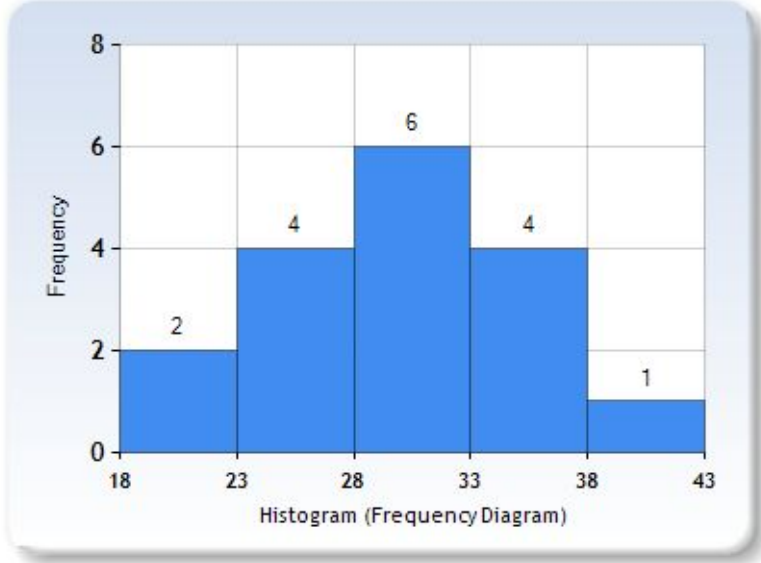
Let's Get Started:

Review: The ages of employees in a department are listed. Compute the mean and the standard deviation for the following data set. Create a histogram for the data.

[Easy Histogram Maker](#)

24, 27, 30, 35, 31, 27, 24, 37, 30, 28, 42, 34, 29, 30,
33, 18, 21

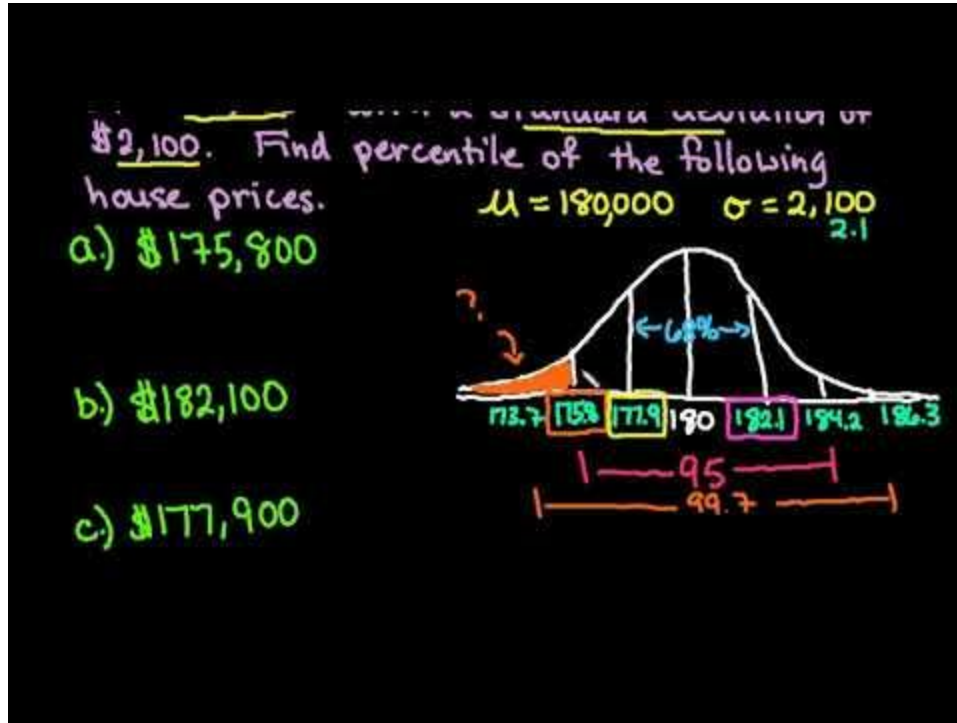
Let's Get Started Answers:



Your Histogram	
Mean	29.41176
Standard Deviation (s)	5.90813
Skewness	0.11153

With 5 bars, the graph looks fairly symmetrical. If we know the mean and the standard deviation we can construct what is called an **EMPIRICAL CURVE** which lets us determine if any particular point in the data set can be considered “Normal”. For instance, would it be considered normal for this company to hire someone who is 26? What about someone who is 42?

Watch this video on the Empirical Rule (68-95-99.7 Rule)



Guided Practice:

It is very important that you understand the Empirical Rule before we move on to Z-Scores tomorrow so take a moment to try these guided practice problems (you can click on the hints if you get stuck)

Once you feel comfortable, move to the next slide to try some on your own.

[Guided Practice 1](#)

[Guided Practice 2](#)

Practice on your own:

Let's see what you know by doing some on your own now. (if you get stuck, watch the short video below to get back on track)

Empirical Rule

["On Your Own" Practice](#)

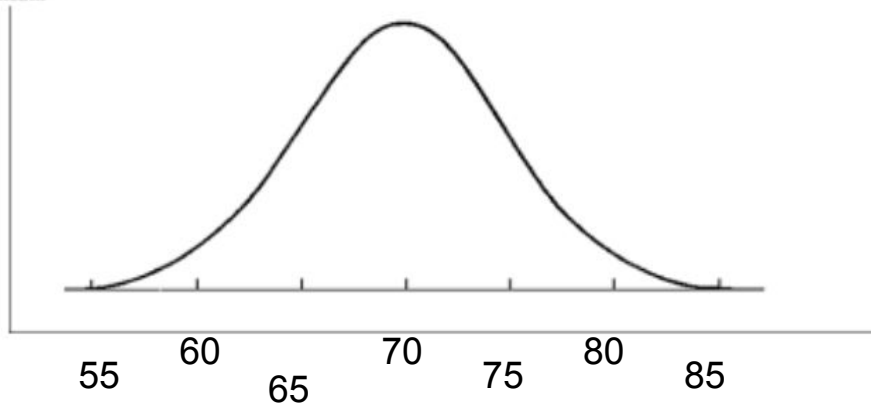
["On Your Own" Demonstration](#)



Answers:

1. 50%
2. 50%
3. 68%
4. 95%
5. 99.7%

6. 2000 freshmen at State University took a biology test. The scores were distributed normally with a mean of 70 and a standard deviation of 5. Label the mean and three standard deviations from the mean.

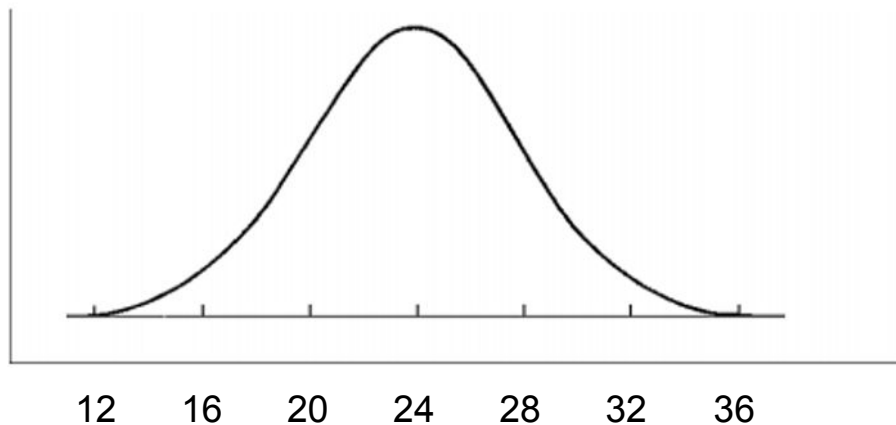


6.

- a. 68%
- b. 47.5%
- c. 97.35%
- d. .15%
- e. 2.5%
- f. $.475 * 2000 = 950$
- g. $.0235 * 2000 = 47$

Answers:

7. 7. 500 juniors at Central High School took the ACT last year. The scores were distributed normally with a mean of 24 and a standard deviation of 4. Label the mean and three standard deviations from the mean.



7.

- a. 68%
- b. 95%
- c. 81.5%
- d. .15%
- e. 50%
- f. $.34 * 500 = 170$
- g. $.68 * 500 = 340$
- h. $.475 * 500 = 237.5 = 238$
- i. $.135 * 500 = 67.5 = 68$
- j. $.025 * 500 = 12.5 = 13$