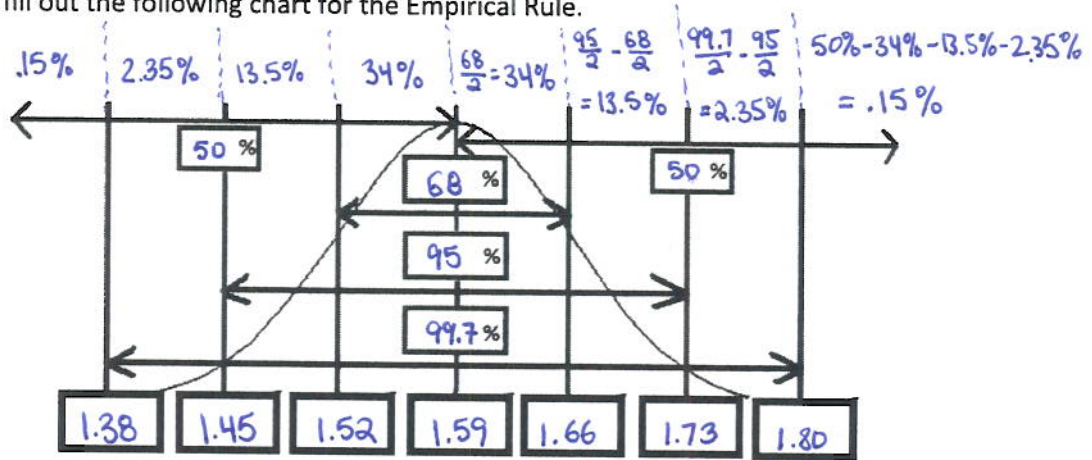


Name: Key

Standard Eight: Quiz 4 – The Empirical Rule

<http://www.gasbuddy.com/>

According to GasBuddy.com the average price for gas (02/08/16) in Columbia, SC is \$1.59 per gallon. Assuming that the standard deviation is seven cents and that gas prices follow a symmetric, bell-shaped distribution, fill out the following chart for the Empirical Rule.



- a) Pricing of gas over three standard deviations above the mean is considered price gauging. Given the information provided, what proportion of gas stations does price gauging occur – i.e. in what proportion of gas stations do they charge over \$1.70 per gallon?

.15% as above

OR

$$100\% - 50\% - \frac{99.7\%}{2} = .15\%$$

(left half) (part we don't want from the right side)

- b) 95% of gas stations sell gas between which dollar amounts?

By the empirical rule 95% of observations lay between two standard deviation of the mean \$1.45 and \$1.73 here.

$$1.59 - 2(.07) = \$1.45$$

$$1.59 + 2(.07) = \$1.73$$

- c) I filled up for \$1.47 per gallon at the BP station down the street. Calculate the Z-Score for this gas station - is this an outlier?

$$Z = \frac{X - \mu}{\sigma} = \frac{1.47 - 1.59}{.07} = \frac{-.12}{.07} = -1.7143$$

$-3 < -1.7143 < 3 \rightarrow$ Not an outlier