315 325 158 352 257: chick weights (in grams)

Calculate the mean, variance, standard deviation of the sample of chick weights

$$\bar{X} = \frac{\sum x_i}{n} = \frac{315 + 325 + 158 + 352 + 257}{5} = 281.4\ g$$

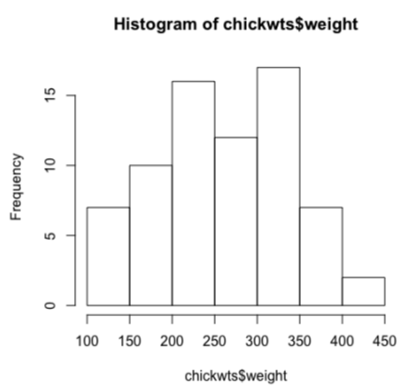
$$s^2 = \frac{\sum (x_i - \bar{X})^2}{n-1}$$
$$= \frac{(315 - 281.4)^2 + (325 - 281.4)^2 + (158 - 281.4)^2 + (352 - 281.4)^2 + (257 - 281.4)^2}{4}$$
$$= \frac{23837.2}{4} = 5959.3\ g^2$$

$$s = +\sqrt{s^2} = +\sqrt{5959.3} = 77.1965 \approx 77.2\ g$$

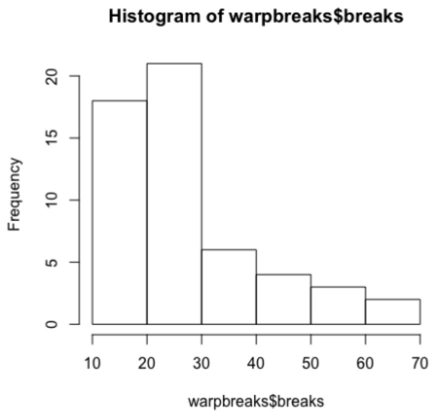
Empirical Rule

68% of chick weights are within: $\bar{X} \pm 1s = 281.4 \pm 77.2 = 204.2, 358.6\ g$
95% observations are within: $\bar{X} \pm 2s = 281.4 \pm 2(77.2) = 127{,}435.8\ g$
99.7% observations are within: $\bar{X} \pm 3s = 281.4 \pm 3(77.2) = 49.8, 513\ g$

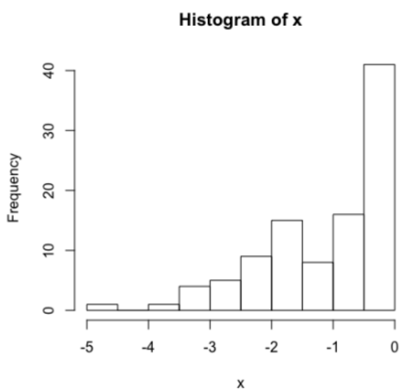
Graphs:
Symmetric/skewed
Modality



Approximately symmetric and unimodal (could technically say bimodal)



Right skewed, unimodal



Left skewed, unimodal