

HOMEWORK

① ON <https://www.basketball-reference.com/players/g/greenda02/gamelog/2019>

You can find Statistics on Danny Green Scoring for the regular Season 2018-2019

② The units of ^{the} variable are points

③
$$\text{Average} = \frac{\text{Sum of Points Scored}}{\text{Total number of Games Played}}$$

* Total number of games = 80
For the regular season

* Sum of points = $\sum_{i=1}^{80} 11 + 14 + 5 + 16 + \dots + 7 = 821$

$$\text{Average} = \frac{821}{80} = 10.2625 \\ = \text{Ans}$$

④ Min = Minimum points scored in the regular season 2018-2019

$$= 0$$

Max = Maximum points scored in the regular season 2018-2019 = 29

$$= 29$$

Median = Arrange the data in ascending order
= 9.5 $\Rightarrow$ Answer

$$Q_1 = \left(\frac{n+1}{4} \right)^{\text{th}} \text{ item} = \left(\frac{80+1}{4} \right)^{\text{th}} \text{ item}$$

$$(20.25)^{\text{th}} \text{ item} = 20^{\text{th}} \text{ item} + \left(\frac{1}{4}\right) [22^{\text{th}} - 20^{\text{th}} \text{ item}]$$

$$= 6 + \frac{1}{4}(6-6) = 6 + 0$$

$$= \boxed{6}$$

$$Q_3 = 3 \left[\frac{n+1}{4} \right]^{\text{th}} \text{ item} = 3 \times [20.25]^{\text{th}} \text{ item}$$

$$= 60.75^{\text{th}} \text{ item}$$

$$= 60^{\text{th}} \text{ item} + \left[\frac{3}{4} \right] (62^{\text{nd}} - 60^{\text{th}} \text{ item})$$

$$= 14 + \frac{3}{4}(15-14)$$

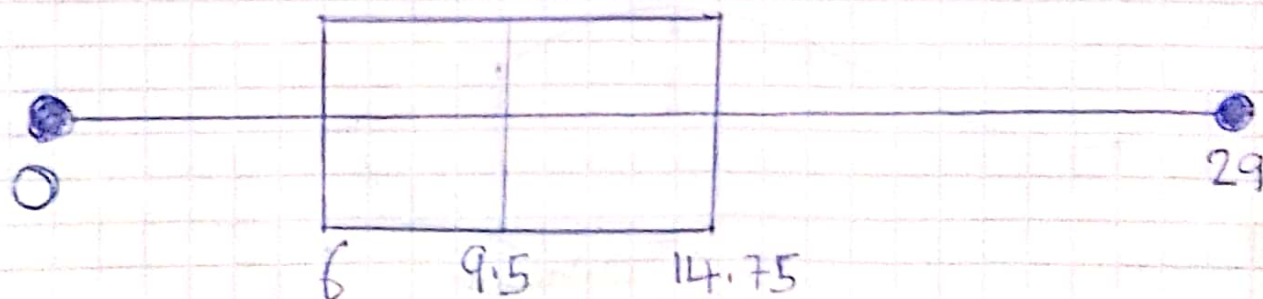
$$14 + \frac{3}{4}(1) = 14 + 0.75$$

$$= 14.75$$

Q Interquartile Range = $Q_3 - Q_1$

$$= 14.75 - 6$$

$$= 8.75$$



⑤ Standard deviation (S^2)

$$S^2 = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}} \quad n-1 = 80-1 = 79$$

$$\bar{x} = 10.2625$$

$$S = \sqrt{(11-10.2625)^2 + (14-10.2625)^2 + (5-10.2625)^2 + \dots}$$

$$+ (21-10.2625)^2 + (7-10.2625)^2$$

$$= \underline{\underline{5.7341}}$$

6 Spread of the data is;

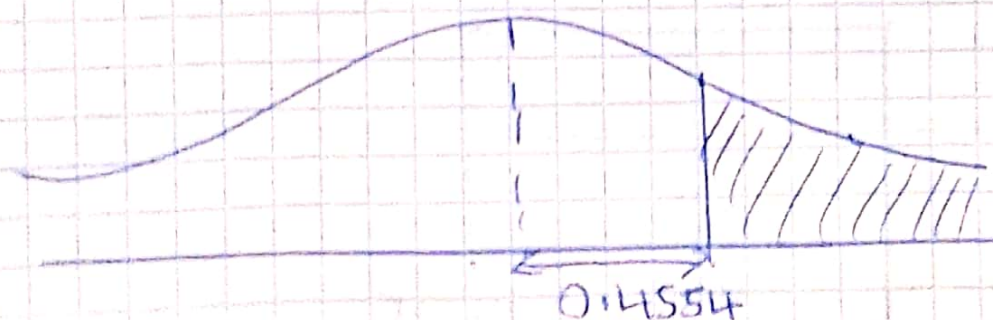
$$= \text{Max} - \text{min}$$

$$= 29 - 0 = \underline{29}$$

7 We use a Z-score value to find the probability that Danny Green will score more than 20 points in his next game (Assume the data is normally distributed)

$$Z \text{ statistic} = \frac{x - \bar{x}}{s_{\bar{x}}} = \frac{20 - 10.2625}{5.7341}$$

$$= \frac{9.7375}{5.7341} = 1.6982 \approx \underline{1.7}$$



* Read 1.7 from the normal table to get 0.14554 and you subtract the value from 0.5 (half) to get the probability value $0.5 - (0.14554) = 0.04446$

* This implies that Danny Green has a 4.446% $\approx$ 4% chance of scoring more than 20 points in his next game.