

Grade 9 Mathematics Worksheet

Measure of central tendency

Questions:

- The cumulative rainfall measured in Kwazulu-Natal for August 2009 is as follows:
 (information from www.weathersa.co.za)

KWAZULU-NATAL	Total (mm)	Rainfall
Babanango	13	
Boscombe	8	
Cathedral Peak - Hotel	3	
Cedara	0	
Charters Creek	7	
Durban Weather Office	13	
Estcourt	9	
Giants Castle Aws	1	
Greytown	11	
Greytown Rietvlei	4	
Mandini	9	
Margate	42	
Matatiele	0	
Mooi River	1	
Mount Edgecombe	6	
Mtunzini	4	
Paddock	6	
Pennington South	35	
Port Edward	57	
Richards Bay Airport	13	
Riverview	14	
Royal National Park	3	
Sea Fearers Culb	5	
Shaleburn	6	
Vryheid	2	

- Calculate the mean of the rainfall in Kwazulu-Natal.
- Determine the median of the data given.

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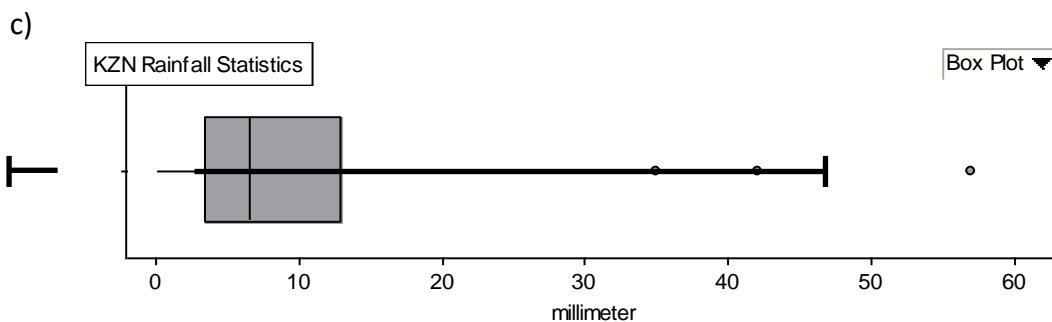
- c) It is given that the lower quartile is 3,5 and the upper quartile is 13. Draw a box and whisker diagram of the data.
- d) Does this data have extreme values?
- e) What is the mode of the data?

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Solution:

1. a) $\bar{x} = \frac{272}{25} = 10,88 \text{ mm.}$

b) The median is at data point $\frac{25+1}{2} = 13$ which has a value of 6. So the median rainfall is 6mm.



d) Yes there appears to be three extreme values at the top end. They are 35mm, 42mm and 57mm. Check: $IQR = 13 - 3,5 = 9,5$.
 So $Q3 + 1,5 IQR = 13 + 1,5(9,5) = 27,25\text{mm}$. All these values lie above this value, so they are extreme values (or outliers).

e) The set of data is bi-modal at 6mm and 13mm.

Remember to order the data when finding the median.