

Question 2:

Mark

- a) Find the median, harmonic mean and 23rd percentile for the following frequency distribution.

Class Boundaries	f	c.f
145 – 150	4	4
150 – 155	6	10
155 – 160	28	38
160 – 165	58	96
165 – 170	64	150
170 – 175	30	180

$$\text{Median} = \bar{x} = l + \frac{h}{f} \left(\frac{n}{2} - c \right) = 162.704$$

$$\text{H.M} = \frac{n}{\sum \left(\frac{1}{x} \right)} = 352.38$$

$$P_{23} = l + \frac{h}{f} \left(\frac{23n}{100} - c \right) = 162.176$$

Assignment No.1 (Course STA301)

Question 1:

Marks: 5+2=7

a) Following are the heights (in centimeters) of 45 female high school students. Prepare a frequency distribution of the data where the class width is 5, the number of classes is 6 and the smallest observation is 148. Also obtain the relative frequency and relative cumulative frequency.

Classes	(f)	<u>R.f</u>	<u>c.f</u>
148-152	6	6/45	6
153-157	11	11/45	17
158-162	14	14/45	31
163-167	9	9/45	40
168-172	3	3/45	43
173-177	2	2/45	45

b) Which level of measurement (scale of measurement) is suitable for the following data in each example?

- i) Ratio
- ii) ordinal
- iii) Nominal
- iv) Ratio

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- b) Explain the concept of Geometric mean? Also find the geometric mean for the following data.

The average of a set of products, the calculation of which is commonly used to determine the performance results of an investment or portfolio. Technically defined as "the nth root product of 'n' numbers", the formula for calculating geometric mean is most easily written as:

$$GM = \sqrt[n]{x_1 \cdot x_2 \cdot \dots \cdot x_n}$$

$$= 21.66$$

secnd qstion k a part ma ap ko medin ka formula dekan ha

median = $\bar{x}$ childa $= l + \frac{h}{f} (n/2 - C.F)$

is ma

l = the lower class boundary of the median class (n/2)

h = the class interval size of the median class

f = the class frequency of median class

$n = \sum f$ = total frequency

C.F = the cumulative frequency preceding the median class cumulative frequency

c.b f c.f

145-150 4 4

150-155 6 10

155-160 28 38

160-165 58 96

165-170 64 160

170-175 30 190

total 190



median class or the modal class = $(n/2)^{th} = 190/2 = 95^{th}$ (to see in c.f)

so the median or modal class is 160-165 58 96

by putting the value in formula

median = $160 + \frac{5}{58}(95 - 3)$ 😊

$= 160 + \frac{5}{58}(57)$

$= 164.9138$

q1 part A is is ok ?? help

classes Frequency Relative Frequency Cumulative Relative Frequency

148 - 155 11 0.244 0.244

155 - 162 19 0.422 0.666

162 - 169 10 0.222 0.888

169 - 176 4 0.089 0.977

176 - 183 1 0.022 0.999

is this ok???