

Name:

ID#:

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**Show your work in detail and write neatly and eligibly**

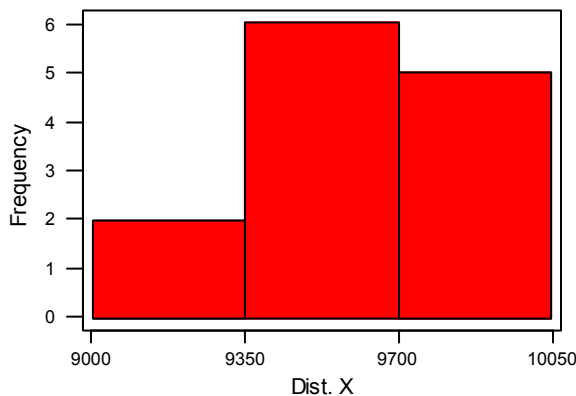
Using the following set of data

<b>X</b>	9450	9390	9980	9630	9760	10050	9480	9140	9000	9530	9650	9790	9830
<b>Y</b>	661	667	735	712	711	715	664	603	579	587	578	553	549

1. Construct a grouped frequency distribution for X where [9350-9699] is one of the classes.

Class	Tally	Freq.
[9000-9349]	//	2
[9350-9699]	//////	6
[9700-10050]	/////	5
<b>Total</b>		<b>13</b>

2. Construct a relative frequency histogram for X.



3. Find the mean and the standard deviation for Y.

$$\bar{x} = \frac{\sum x_i}{n} = \frac{8214}{13} = 639.5385$$

$$s^2 = \frac{\sum x_i^2 - n\bar{x}^2}{n-1} = \frac{5371334 - 13(639.5385)^2}{12} = 4517.54927 \Rightarrow s = \sqrt{s^2} = 67.21311$$

4. Find IQR,  $Q_2$  and the 81<sup>th</sup> percentile for Y

549 553 578 579 587 603 661 664 667 711 712 715 735

$$Q_1 = P_{25} \Rightarrow i = \frac{25}{100} \cdot 14 = 3.5 \Rightarrow Q_1 = X_{(3)} + 0.5(X_{(4)} - X_{(3)}) = 578 + 0.5(579 - 578) = 578.5$$

$$Q_3 = P_{75} \Rightarrow i = \frac{75}{100} \cdot 14 = 10.5 \Rightarrow Q_3 = X_{(10)} + 0.5(X_{(11)} - X_{(10)}) = 711 + 0.5(712 - 711) = 711.5$$

$$IQR = Q_3 - Q_1 = 711.5 - 578.5 = 133$$

$$Q_2 = P_{50} \Rightarrow i = \frac{50}{100} \cdot 14 = 7 \Rightarrow Q_2 = X_{(7)} = 661$$

$$P_{81} \Rightarrow i = \frac{81}{100} \cdot 14 = 11.34 \Rightarrow P_{81} = X_{(11)} + 0.34(X_{(12)} - X_{(11)}) = 712 + 0.34(715 - 712) = 726.24$$

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<b>X</b>	9450	9390	9980	9630	9760	10050	9480	9140	9000	9530	9650	9790	9830
<b>Y</b>	A	B	A	AB	O	B	B	AB	O	A	A	A	B

1. Starting from 9000, construct a grouped frequency distribution for X with two classes.

Class	Tally	Freq.
[9000-9550]	//////	8
[9550-10100]	/////	5
<b>Total</b>		<b>13</b>

2. Calculate the size of each slice in a pie chart for Y.

$$\text{Angle of A} = (5/13) \times 360 = 138.5$$

$$\text{Angle of B} = (4/13) \times 360 = 110.7$$

$$\text{Angle of AB} = (2/13) \times 360 = 55.4$$

$$\text{Angle of O} = (2/13) \times 360 = 55.4$$

3. Construct a Box Plot for X and comment on the shape of the graph.

9000 9140 9390 9450 9480 9530 9630 9650 9760 9790 9830 9980 10050

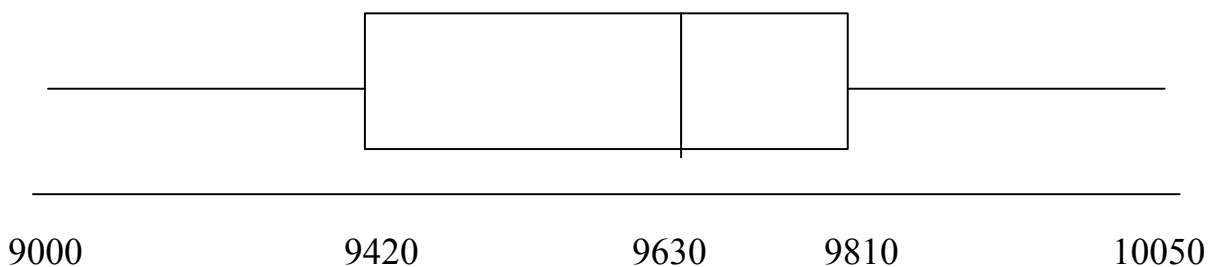
$$Q_1 = P_{25} \Rightarrow i = \frac{25}{100} \times 14 = 3.5 \Rightarrow Q_1 = X_{(3)} + 0.5(X_{(4)} - X_{(3)}) = 9390 + 0.5(9450 - 9390) = 9420$$

$$Q_2 = P_{50} \Rightarrow i = \frac{50}{100} \times 14 = 7 \Rightarrow Q_2 = X_{(7)} = 9630$$

$$Q_3 = P_{75} \Rightarrow i = \frac{75}{100} \times 14 = 10.5 \Rightarrow Q_3 = X_{(10)} + 0.5(X_{(11)} - X_{(10)}) = 9790 + 0.5(9830 - 9790) = 9810$$

$$IQR = Q_3 - Q_1 = 9810 - 9420 = 390$$

$$UB = Q_3 + 1.5IQR = 10395 \text{ and } LB = Q_1 - 1.5IQR = 8835$$



Left- skew

4. Find the appropriate measure of central tendency for the variable Y

The Mode = A