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Q1

23 82 79 81 41 35 29
 49 37 33 56 53 25 31
 64 77 70 69 82 85 42
 47 68

(a)

Construct frequency distribution Table.

23	37	49	56	64	77	82
25	33	47	53	68	79	81
29	35	41		70		82
	31	42		69		85

(a)

Classes	Class boundaries	Class Marks x	Frequency (f)	Relative Frequency	Cumulative Frequency (F)
	-0.5 +0.5	$\frac{\text{Lower} + \text{Upper Interval}}{2}$		Total = 23	
21 - 30	20.5 - 30.5	$\frac{21 + 30}{2} = 25.5$	3	$\frac{3}{23} = 0.13$	3
31 - 40	30.5 - 40.5	$\frac{31 + 40}{2} = 35.5$	4	$\frac{4}{23} = 0.17$	3+4 = 7
41 - 50	40.5 - 50.5	$\frac{41 + 50}{2} = 45.5$	4	$\frac{4}{23} = 0.17$	7+4 = 11
51 - 60	50.5 - 60.5	$\frac{51 + 60}{2} = 55.5$	2	$\frac{2}{23} = 0.086$	11+2 = 13
61 - 70	60.5 - 70.5	$\frac{61 + 70}{2} = 65.5$	4	$\frac{4}{23} = 0.17$	13+4 = 17
71 - 80	70.5 - 80.5	$\frac{71 + 80}{2} = 75.5$	2	$\frac{2}{23} = 0.086$	17+2 = 19
81 - 90	80.5 - 90.5	$\frac{81 + 90}{2} = 85.5$	4	$\frac{4}{23} = 0.17$	19+4 = 23

(b)

Stem

Leaf

2

3, 5, 9

3

1, 3, 5, 7

4

1, 2, 7, 9

5

3, 6

6

4, 8, 9

7

0, 7, 9

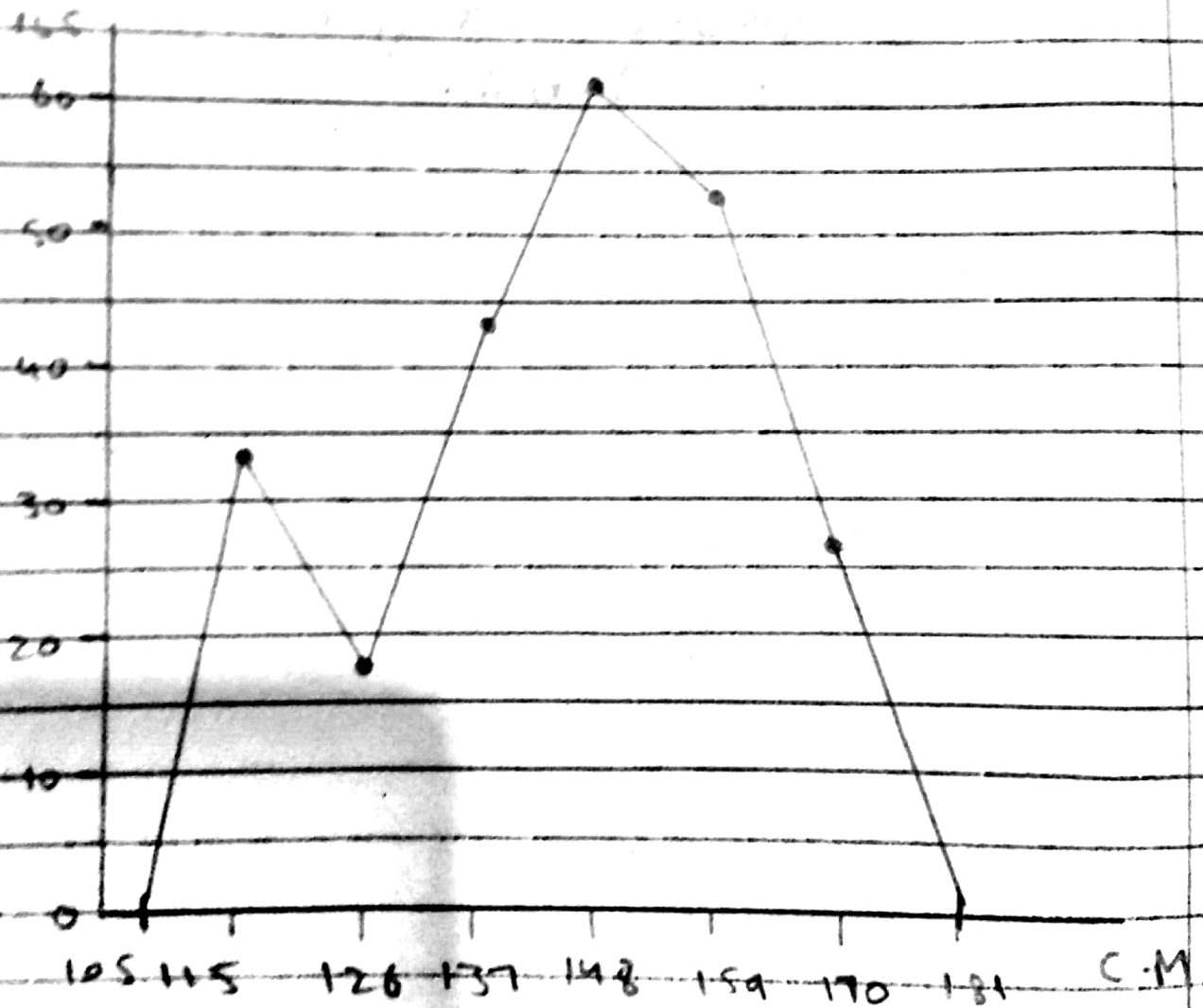
8

1, 2, 2, 5

(a)

Histogram or Polygon

Earnings	Workers	Class Marks x
110-120	34	115
121-131	18	126
132-142	44	137
143-153	62	148
154-164	54	159
165-175	26	170



Polygon

(b)

Uses of biostatistics.

Biostatistics can be used in the following ways:

- 1 To inform general public
- 2 To explain things that have happened.
- 3 To justify a claim
- 4 To provide general comparisons
- 5 To predict the decision regarding future outcomes
- 6 To estimate the unknown quantities.
- 7 To establish association / relationship between factors.

Q 3 - Geometric Mean.

C-I	f	x	fx	Log x	f · log x
0-5	34	2.5	5	0.39	(34)(0.39) = 13.26
5-10	39	7.5	292.5	0.87	(39)(0.87) = 33.93
10-15	28	12.5	350	1.09	(28)(1.09) = 30.52
15-20	14	17.5	245	1.24	(14)(1.24) = 17.36
	n=115				

Formula

$$\Sigma = 95.07$$

$$G.M = \text{Antilog} \left[\frac{1}{n} \Sigma f \log x \right]$$

$$\text{Antilog} \left[\frac{1}{115} \cdot 95.07 \right]$$

$$\text{Antilog} (0.8266)$$

$$G.M = 6.708$$

Median

C-I	f	C-f
0-5	34	34
5-10	39	34 + 39 = 73
10-15	28	73 + 28 = 101
15-20	14	101 + 14 = 115
	$n = 115$	

$$M = \frac{n+1}{2} = \frac{115+1}{2}$$

$$M = 58$$

2nd class

$$M = l + \frac{h}{f} \left(\frac{n}{2} - C \right)$$

$$M = 4.5 + \frac{5}{39} \left(\frac{115}{2} - 34 \right)$$

$$M = 4.5 + 0.12 (57.5 - 34)$$

$$M = 4.06 (23.5)$$

$$M = 95.41$$