Ex-6:-

Date:- 16/01/19

5, 9, 11, 12, 13, 15, 17, 17, 18, 19, 21, 22, 23, 24, 45

a) $\frac{15}{100} \times (n+1)$

$= \frac{15}{100}(16)$

$= 2.4$th value.

$\therefore$ 2nd value + $0.4(3^{rd} - 2^{nd})$ value.

$9 + 0.4\left(\frac{11-9}{2}\right)$

$= 9 + 0.4(\cancel{00}8)$

$= 9.8$

b) 35th percentile

$\frac{35}{100} \times 16 = 0.35(16) = 5.6$th value.

$13 + 2(0.6)$

$= 14.2.$

b) 25th percentile

$\frac{25}{100}(15+1)$

$= 0.25\ (16)$

$= 4$

$Q_1 = 4$th value $= 10$.

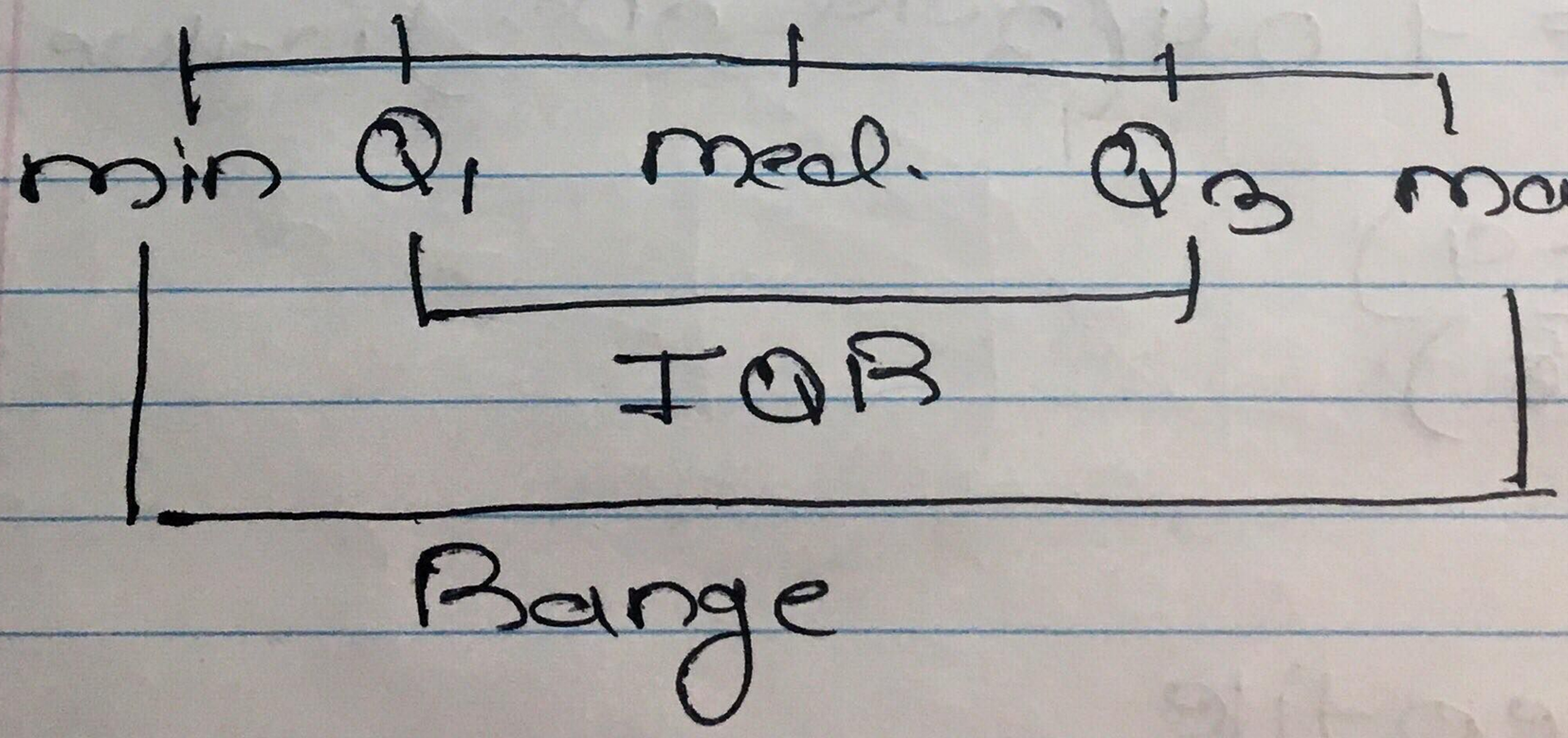
$Q_3 = 75$th

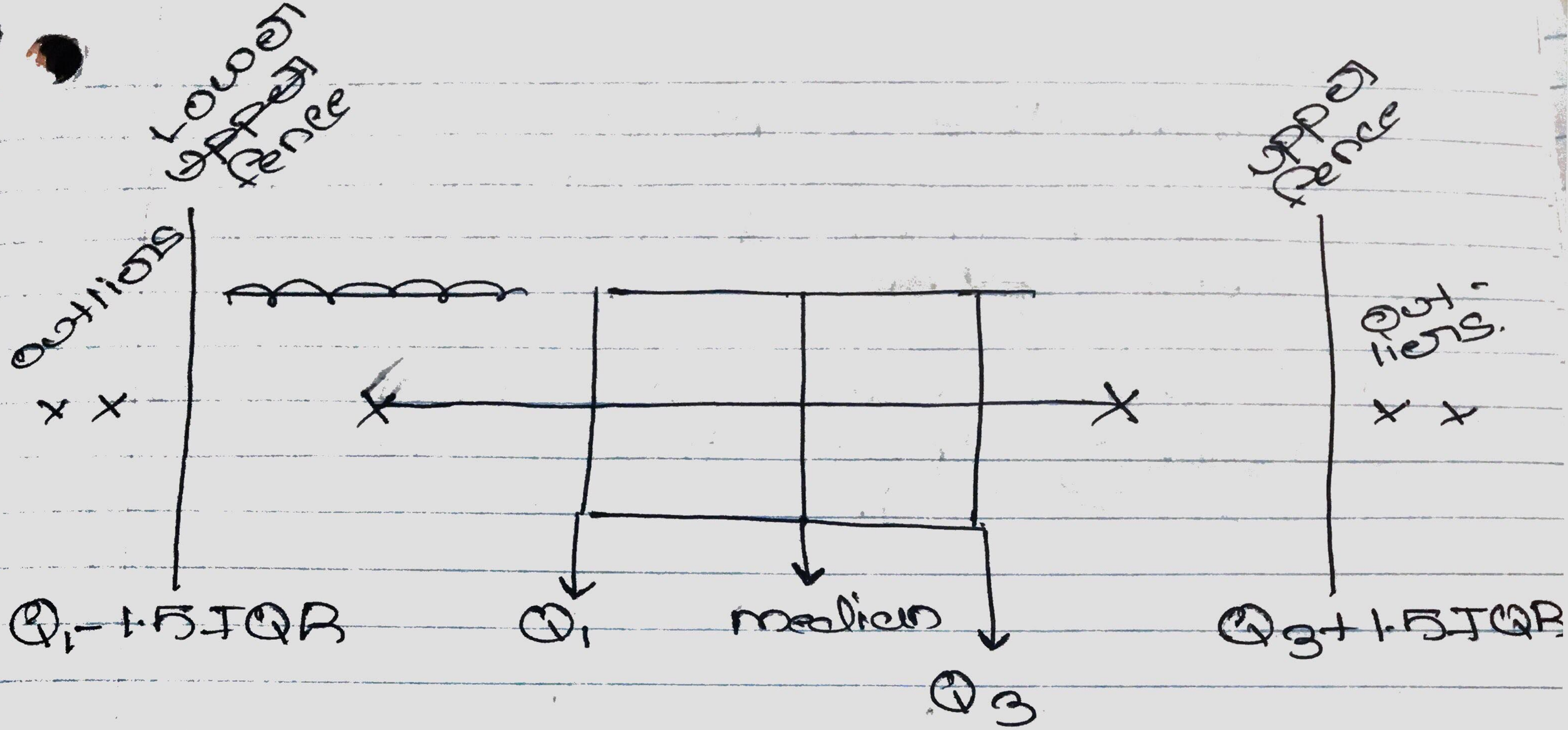
$= \frac{75}{100}(16) = 12$.

$= 12$th value $= 22$

$Q_2 = 8$th value $= 17$.

IQR $= Q_3 - Q_1$





For Ex-6 Box-plot :-

1) Find Q1, Q3, median

Q1 = 10 Q3 = 22 median = 17

2) Find IQR = 22 - 12

= 10

3) Find fences

upper fence = Q3 + 1.5 IQR

= 37

Lower fence = Q1 - 1.5 IQR

= -3.

4) Find the whiskers:

i) Lowest value so that it is ~~lower~~ higher than the lower fence = 5.

ii) highest value so that it is lower than the highest fence = 24.

anything beyond the fences are outliers

Chapter - 3.

Scatterplots for Bi-variant Data → to see for any correlation.

- I is an independant variable and another is a dependant variable.

Correlation Co-efficient :- determines strength of a linear relationship.

$$r = \frac{S_{xy}}{S_x \times S_y}$$

is the co-variance → standard deviation of xy → standard deviation x and y

$$S_x = \sqrt{\frac{1}{n-1}\left[\sum_{i=1}^{n} x_i^2 - \left(\frac{\sum_{i=1}^{n} x_i}{n}\right)^2\right]}$$

$$S_y = \sqrt{\frac{1}{n-1}\left[\sum_{i=1}^{n} y_i^2 - \left(\frac{\sum_{i=1}^{n} y_i}{n}\right)^2\right]}$$

$$S_{xy} = \frac{1}{n-1}\left[\sum_{i=1}^{n} x_i y_i - \frac{\sum_{i=1}^{n} x_i \sum_{i=1}^{n} y_i}{n}\right]$$

Exercise 2 -

x	y	x^2	y^2	xy
2	45.75	4	2093.06	91.5
2	60.19	4	3622.83	120.38
2	115	4	13225	230
3	68.33	9	4668.99	204.99
4	100.92	16	10184.85	403.68
1	35.86	1	1285.94	35.86
5	130.62	25	17061.58	653.1
19	556.67	63	52142.25	1739.51

$r = 0.76019$

$r^2 = 0.762$.

The Regression line constant =

describes the linear relationship between dependant and independant variables.

$y = a + bx$

- y → dependant variable.
- x → independant variable
- a → is basically mean of dependant variable (if $x = 0$).