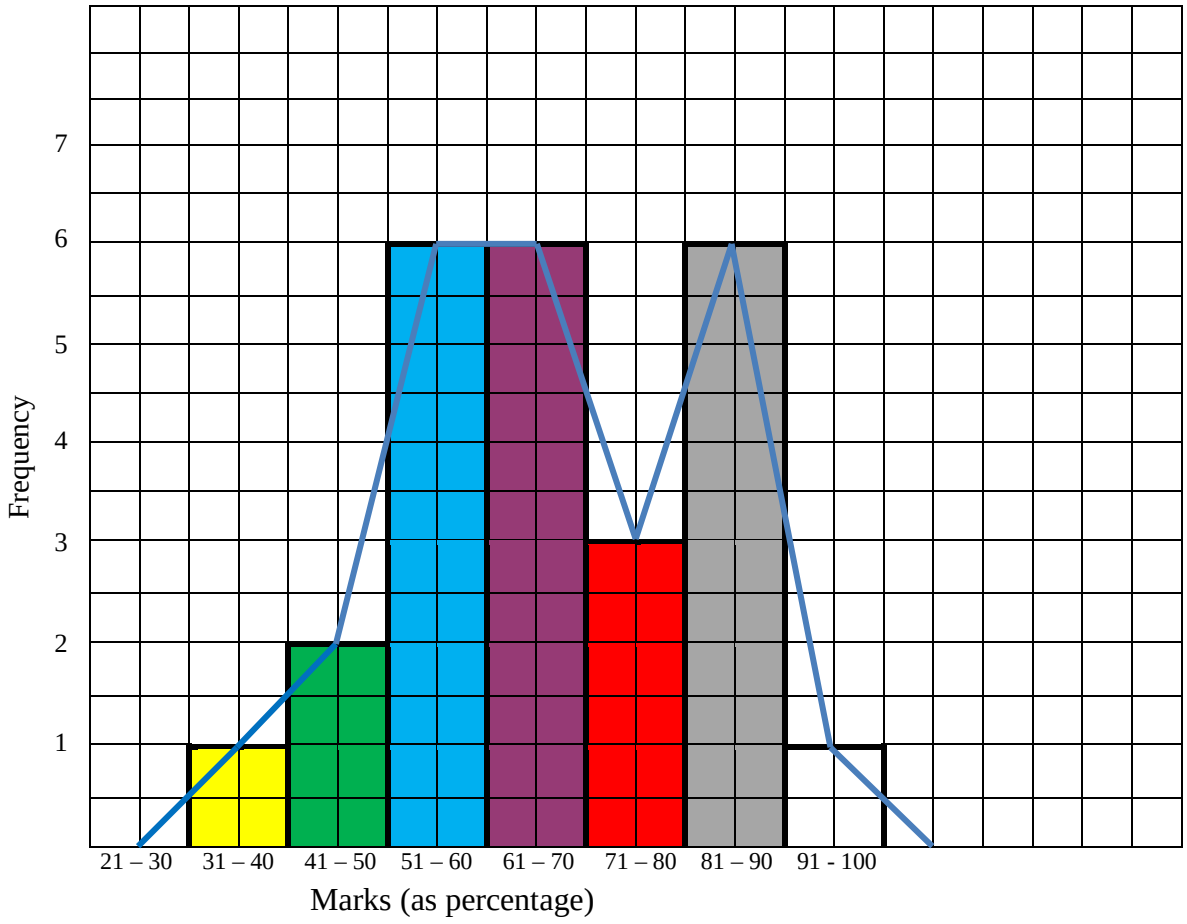
(1) The following table shows the grade 10-class marks (in percentage) for a Tourism test:

67	77	64	45	81	67	66
54	81	96	78	58	54	88
34	54	66	81	63	56	
92	48	87	56	74	87	

(a) Present the data on a histogram. First draw a frequency table.

Class	31 - 40	41 - 50	51 - 60	61 - 70	71 - 80	81 - 90	91 - 100
Tally	/	//	### /	### /	///	### /	//
Frequency	1	2	6	6	3	6	2

Histogram and frequency polygon of the
grade 10 class marks (as percentage) for a Tourism test



(b) Draw the frequency polygon in on the graph in (a).

See graph in (a).

(c) Determine the range of the data.

Range = highest score - lowest score
= 96 - 34
= **62**

(d) Calculate the class average. [Round off to the nearest integer.]

$$\text{Class average} = \frac{\text{Sum of all the scores}}{\text{Number of scores}}$$
$$= \frac{1\,774}{26}$$
$$= \mathbf{68{,}23...}$$
$$\approx \mathbf{68}$$

(e) Determine the mode.

Mode = 54 and 81

(f) If the test originally counted 40 points, determine the arithmetic mean as a mark out of 40.

$$\therefore \frac{68}{100} = \frac{x}{40}$$
$$\therefore \frac{68 \times 40}{100} = x$$
$$\therefore \mathbf{x = 27{,}2}$$

(g) How many learners passed the test if the pass mark was 16 out of 40 ?

$\frac{16}{40} = 40\% \rightarrow$ pass mark

$\therefore$ **25 of the 26 learners passed.**

(h) Determine the percentage of learners who failed the test. [Rounded off to 1 decimal.]

$\therefore$ 1 of the 26 learners has failed.

$\therefore \frac{1}{26} \times \frac{100}{1} = 3{,}846.. \approx \mathbf{3{,}8\%}$ **learners has failed.**

(2) The following is a summary of the number of distinctions per subject for the grade 9 learners for a June exam. The average number of distinctions per subject for the June exam was 15.
Calculate the value of x.

17	9	11	12	x	15	23	12	25
14	13	x	18	19				

$$\text{Class average} = \frac{\text{Sum of all the scores}}{\text{Number of scores}}$$

$$= \frac{17+9+11+12+x+15+23+12+25+14+13+x+18+19}{14}$$

$$\therefore \quad 15 = \frac{17+9+11+12+x+15+23+12+25+14+13+x+18+19}{14}$$

$$\therefore \quad 15 = \frac{2x+188}{14}$$

$$\therefore \quad 15 \times 14 = 2x + 188$$

$$\therefore \quad 210 = 2x + 188$$

$$\therefore \quad 2x = 210 - 188$$

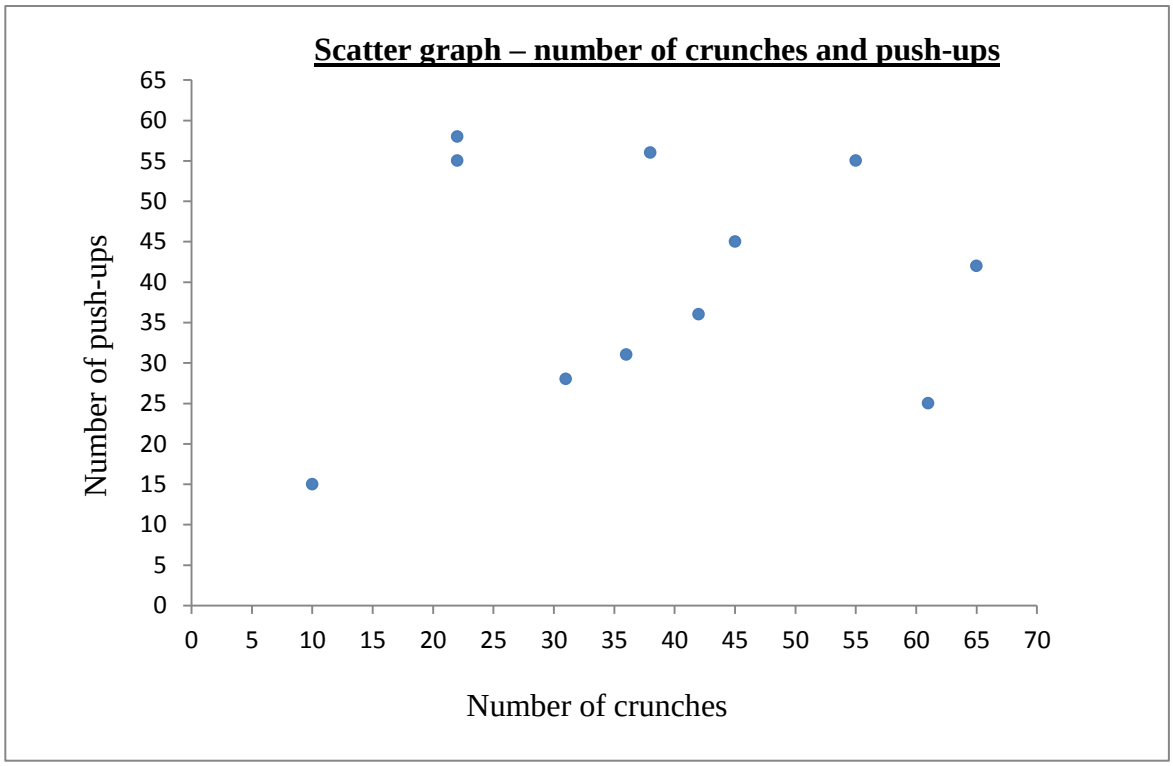
$$\therefore \quad 2x = 22$$

$$\therefore \quad \boldsymbol{x = 11}$$

(3) The table shows the number of crunches and push-ups that the members of a cricket team can do in a minute:

Name	A	B	C	D	E	F	G	H	I	J	K
Crunches	65	34	31	55	36	21	33	42	61	45	38
Push-ups	42	55	47	42	31	44	58	36	25	45	56

(a) Draw a scatter graph of the above information.



(b) Describe the correlation of the points on the graph in (a).

No correlation

(c) Determine the average number of crunches of the team members. [Correct to 1 dec.]

$$\text{Average number of crunches} = \frac{\text{Sum of all the scores}}{\text{Number of scores}}$$

$$= \frac{65+22+31+55+36+10+22+42+61+45+38}{11}$$

$$\therefore \text{Average number of crunches} = \frac{427}{11}$$

$$\therefore \textbf{Average number of crunches} \approx \textbf{38,8}$$

(d) Determine the median of the number of push-ups of the team members.

Orden the data: 15 ; 25 ; 28 ; 31 ; 36 ; 42 ; 45 ; 55 ; 55 ; 56 ; 58

$\therefore$ Median = 42