

6.4 Answers

GCSE Mathematics

Statistics II : Handelling and Processing Data

6.4.1 Solutions (Introductionary Question)

$$\begin{aligned} \text{mean} &= \frac{(13 \times 0) + (2 \times 1) + (3 \times 2) + (8 \times 3) + (14 \times 4)}{40} \\ &= \frac{0 + 2 + 6 + 24 + 56}{40} \\ &= \frac{88}{40} \\ &= 2.2 \end{aligned}$$

6.4.2 Solutions (6.2 Exercise)

Answer 1

$$\begin{aligned} \text{mean} &= \frac{(2 \times 0) + (10 \times 1) + (7 \times 2) + (6 \times 3) + (3 \times 4) + (2 \times 5)}{30} \\ &= \frac{0 + 10 + 14 + 18 + 12 + 10}{30} \\ &= \frac{64}{30} \\ &= 2.13 \end{aligned}$$

Answer 2

$$\begin{aligned} \text{mean} &= \frac{(2 \times 6) + (4 \times 7) + (5 \times 8) + (8 \times 9) + (1 \times 10)}{20} \\ &= \frac{12 + 28 + 40 + 72 + 10}{20} \\ &= \frac{162}{20} \\ &= 8.1 \end{aligned}$$

Answer 3

$$\begin{aligned} \text{mean} &= \frac{(6 \times 5) + (10 \times 15) + (19 \times 25) + (15 \times 35)}{50} \\ &= \frac{30 + 150 + 475 + 525}{50} \\ &= \frac{1180}{50} \\ &= 23.6 \end{aligned}$$

Answer 4

Number of students is $30 + 12 + 18 + 60 = 120$

$$\begin{aligned} \text{mean} &= \frac{(30 \times 10) + (12 \times 12) + (18 \times 14) + (60 \times 17)}{120} \\ &= \frac{300 + 144 + 252 + 1020}{120} = \frac{1716}{120} = 14.3 \end{aligned}$$

Answer 5

$$\begin{aligned} \text{spend} &= (24 \times 10) + (20 \times 30) + (9 \times 50) + (12 \times 70) + (15 \times 90) \\ &= 240 + 600 + 450 + 840 + 1350 = \$ 3480 \end{aligned}$$

Answer 6

Number of text messages	Number of teenagers	Mid-interval value	Contribution to the total
0 to 2	3	1	3
3 to 5	6	4	24
6 to 8	10	7	70
9 to 11	15	10	150
12 to 14	5	13	65
15 to 17	1	16	16
Total :			328

(a) 9 to 11

(b) (i) 8.2 texts/pupil

(ii) 10 texts in 6 to 8 interval could all have been 6 texts, for example.
I assumed they were all 7 texts.

Answer 7

Number of Commendations	Number of Pupils	Mid-interval value	Contribution to the total
$0 \leq x \leq 8$	60	4	240
$9 \leq x \leq 15$	30	12	360
$16 \leq x \leq 26$	18	21	378
$27 \leq x \leq 45$	12	36	432
Total :			1410

$$\text{mean} = \frac{1410}{120} = 11.75 \text{ commendations/pupil}$$

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Teachers may obtain detailed worked solutions to the exercises by email from MHHShrewsbury@Gmail.com