8.2 Answers

Waiting Time (minutes)	*Mid-point of bar* (x)	*Number of Customers* (f)	(fx)
0 -	0.5	6	3
1 -	1.5	14	21
2 -	2.5	40	100
3 -	3.5	30	105
4 - 5	4.5	10	45
	Totals	100	274

(d) For example, record waiting times of customers at *all* check-outs.

8. (a)

Number of Nuts	*Mid-point of Bar* (x)	*Number of Packets* (f)	fx
4 - 6	5	26	130
7 - 9	8	33	264
10 -12	11	20	220
13 - 15	14	15	210
16 - 18	17	6	102
	Totals	100	926

Mean number of nuts in a packet $= \dfrac{926}{100} = 9.26$

(b) 12 packs

(c) Ranges cannot be worked out exactly as the original raw data has been grouped. However, the range for nuts could only be as high as $18 - 4 = 14$, whilst the range for raisins could be as high as $30 - 6 = 24$ but only as low as $26 - 10 = 16$. This shows that the chart for raisins (chart B) exhibits the greater range.

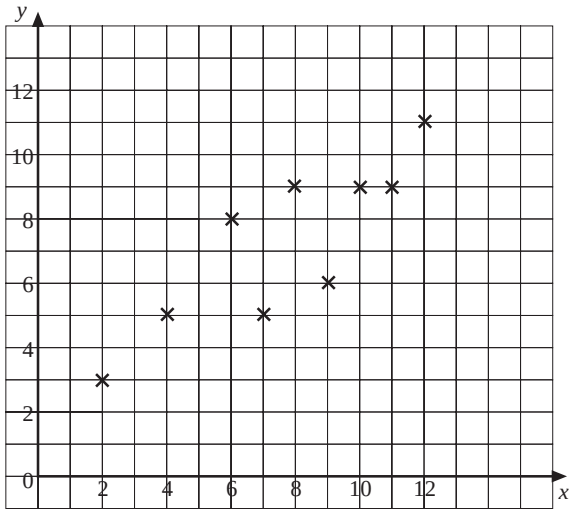
(d) $\dfrac{59}{100} = 0.59$ (or 59%) (e) $\dfrac{6}{100} \times \dfrac{23}{100} = \dfrac{138}{10\,000} = 0.0138$ (or 1.38%)

8.3 Plotting Scatter Diagrams

1. (a) A (b) A
   (c) B (d) C

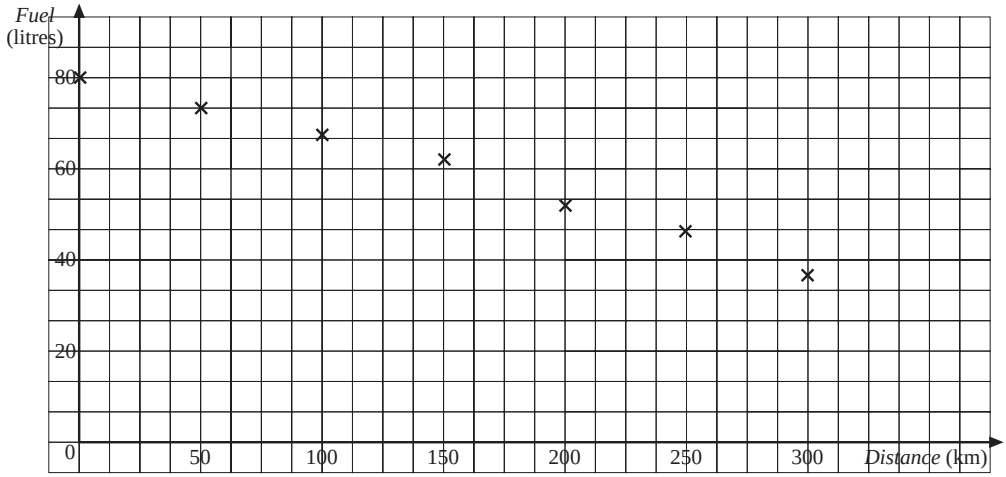
2. (a) See diagram opposite
   (b) Weak/moderate positive correlation

3. (a) Scatter graph
   (b) Any correlation is entirely coincidental!



8.3 Answers

4. (a)



(b) Strong negative correlation

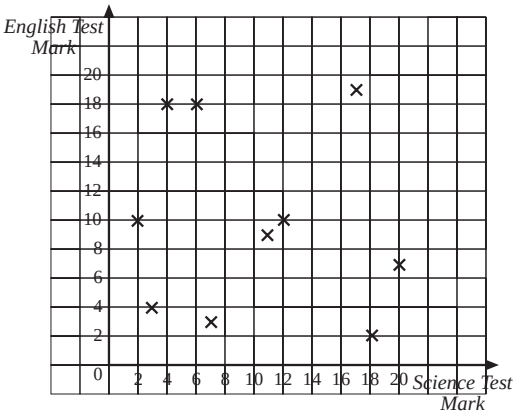
5. (a) Positive correlation for children of a restricted age range (e.g. 5 to 13) but no correlation if you include older teenagers.

(b) No correlation

(c) Possibly strong positive correlation in a single, smallish geographical area. For wider areas with greater mix of housing, little or no correlation.

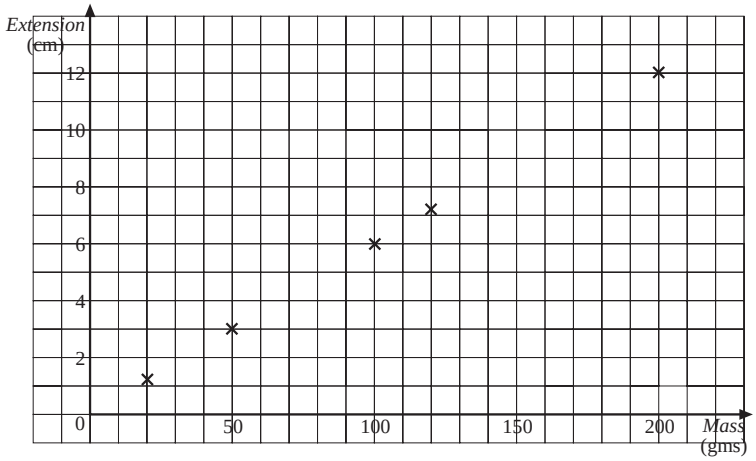
(d) Positive correlation

6. (a)



(b) No correlation

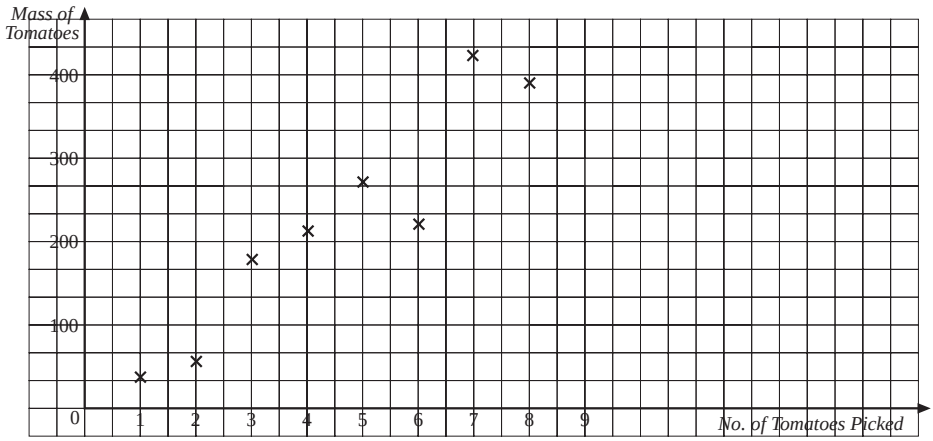
7. (a)



(b) Perfect positive correlation

8.3 Answers

8. (a)



(b) Positive correlation

9. (a) Mean score $\geq$ 60 $\Rightarrow$ total score $\geq 3 \times 60 = 180$

$\Rightarrow$ score in Game C $\geq 180 - 62 - 53 = 65$;

so he needs to score at least 65 in Game C.

(b)

Imran's Scores	*30*	40	*50*
Nia's Scores	35	40	45

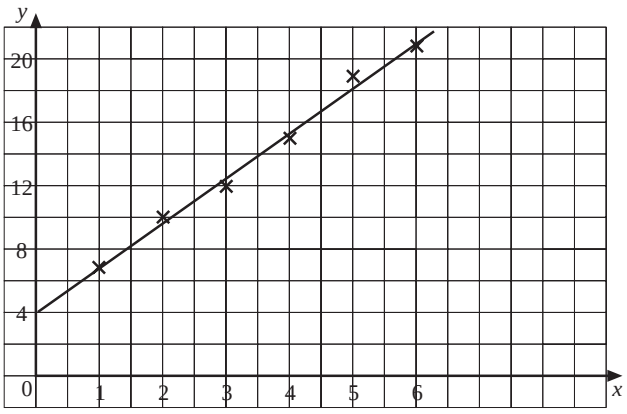
(c) Game A and Game B – positive relationship

Game A and Game C – no relationship

(d) Game B and Game C – no relationship

8.4 Lines of Best Fit

1. (a) and (b)



(c) $y = 4$