

Pages 80–81 Comparing distributions

1 a C b M c M d C

2 a Mode: 10X: 0, 10Y: 4 b Median: 10X: 2, 10Y: 2.5 c Mean: 10X: 2.2, 10Y: 2.5
d 10Y: as bigger averages

3 B, as more consistent and mode is 0

4 a, b and c

5 a both 2.5 b Aisha 7, Betty 3 c Aisha, as she sometimes scores lots of goals or Betty, as she is more consistent

6 a i 7 ii 7 b i 10 ii 4 c Outside is more consistent or greenhouse has more tomatoes on some plants

Pages 82–83 Line graphs

1 a 14 °C b Thursday and Saturday c Friday 17 °C d Line has no meaning.
Temperature changes throughout the day. Values are just the values at 12 midday.

2 a Midnight 3 °C, Midday 6 °C b 6 °C c Friday 12 °C

3 a 1900 miles b 5500 miles c June

4 a 9000–10 000 b No, doesn't necessarily drop below 5000
c Yes, change is continuous, about 15 000

5 No, can't assume it keeps raining but if graph continues at same rate it will flood by 2 pm.

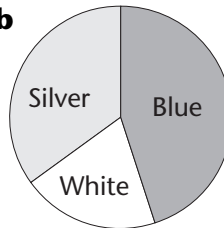
Pages 84-85 Statistical diagrams

1 Distributions are same but men are taller by about 10 cm

2	0	7	8	8	8	9			
	1	1	2	3	3	5	7	8	9
	2	1	2						

3 a 34 years b 22 years c 21 years

4 a Angles: Blue 162° , White 72° , Silver 126° b



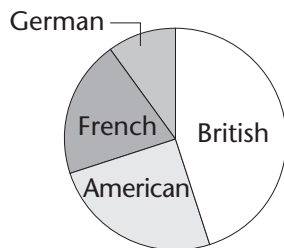
5 160

6 40

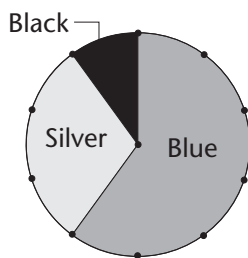
7 c

8 a

9 Angles: British 162° , American 90° , French 72° , German 36°



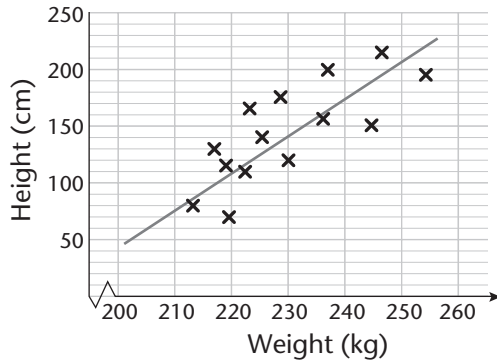
10 Angles: Blue 216° , Silver 108° , Black 36°



Pages 86–87 Scatter diagrams

1 a i W ii N iii K iv G b i N ii G iii S iv K

2 a



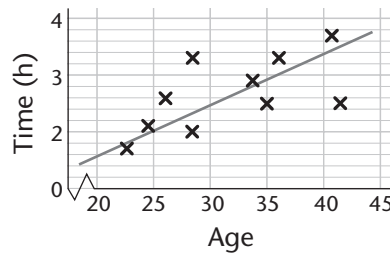
b 150 cm c No, it doesn't fit line of best fit.

3 $2\frac{1}{2}$ hours

4 a, c and d

5 a, b and d

6 a Weak positive b



c $3\frac{1}{2}$ –4 hours

Pages 88–89 Surveys

1 b and c

2 a i Not enough responses ii Not enough responses iii Not relevant to question

b Good range of responses that covers all views

3 1 Leading question, 2 offensive question

4 Derek. He gets a random sample while others are biased.

5 Not enough responses

6 Quota sampling, will give a varied sample

7 All the men and only a fraction of women is not representative.

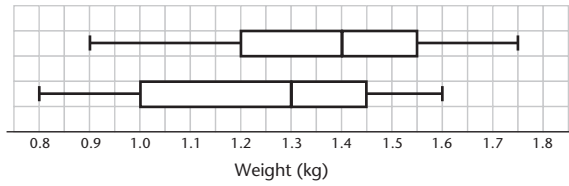
8 a i Not enough responses ii Not enough responses iii Not relevant to question

b Good range of responses which can be analysed mathematically

9 Owen. All methods give a random sample but the more students surveyed the better.

Pages 90–91 Box plots and cumulative frequency diagrams

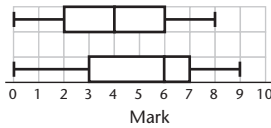
1 a



- b** The marrows grown inside are 0.1 kg heavier on average.
c The marrows grown outside are less consistent.

2 a The upper and lower quartiles and lowest and highest values are symmetrical about the median.

b



(1 mark for 3 parts correct)

3 a **i** 141 cm **ii** 10 cm **b** 8

4 a IQR: 14 cm, median: 40 cm **b** IQR: 19 cm, median: 52 cm

- c** Trees in park are bigger by about 12 cm and also they are more consistent with a lower range.

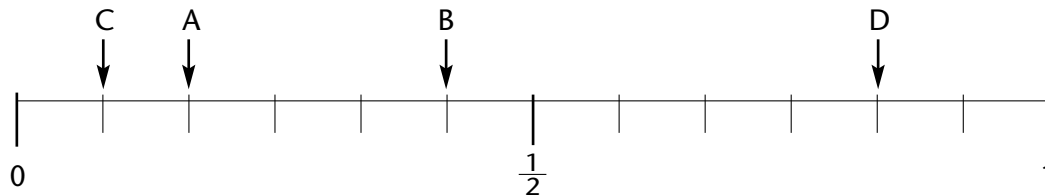
Pages 92–93 Probability 1

1 $\frac{3}{7}$

2 3 blue balls

3 $\frac{11}{20}$

4



(1 mark for 3 correct values)

5 a $\frac{2}{5}$ **b** $\frac{2}{3}$

6 a $\frac{2}{5}$ **b** $\frac{2}{3}$

7 Red 8, Blue 2

8 a $\frac{1}{4}$ **b** $\frac{1}{2}$

9 a $\frac{1}{6}$ **b** $\frac{1}{12}$ **c** $\frac{1}{6}$

Pages 94–95 Probability 2

1 a i 0 **ii** 1 **b i** $\frac{1}{4}$ **ii** $\frac{3}{4}$

2 a Probabilities are 0.4 and 0.6 on each pair of branches.**b i** 0.16 (1 mark for 0.4×0.4) **ii** 0.36 (1 mark for 0.6×0.6)

3 a $\frac{1}{3}$ (1 mark for $\frac{6}{10} \times \frac{5}{9}$) **b** $\frac{7}{15}$ (1 mark for $\frac{1}{3} + \frac{2}{15}$)

4 Bag B as $\frac{4}{7}$ is bigger than $\frac{5}{9}$ (1 mark for either probability)

5 a 40 **b** $\frac{1}{625}$ **c** $\frac{48}{625}$

6 a i $\frac{1}{6}$ **ii** $\frac{5}{6}$ **b i** $\frac{1}{6} \times \frac{5}{6} + \frac{5}{6} \times \frac{1}{6} = \frac{10}{36}$ **ii** He loses £1.60

7 a Tom, as most throws **b** 6 white and 14 black, $320 \div 1000 \approx 0.3$ and $0.3 \times 20 = 6$