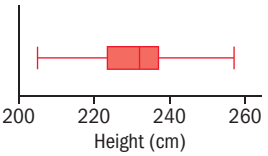
b Median is about 232 cm

c Lower quartile approximately 223 cm, upper quartile approximately 237 cm

d



Exercise 2K

1 a median for boys = 55
median for girls = 55

b IQR boys = 64 – 40 = 24
IQR girls = 68 – 45 = 23

c 50% d 25%

2 a 0 b 12

c 14 d 28 e 25%

3 a 22 b 44

c 53 d 22

Exercise 2L

1 a i 19 ii 6

b i 13 ii 4

c i 7 ii 4.5

Exercise 2M

1 a standard deviation = 3.17

b standard deviation = 2.29

2 mean = 8.8
standard deviation = 5.44

3 a range = 5 b IQR = 2

c mean = 3.26
standard deviation = 1.28

4 a range = 6 b IQR = 2

c mean = 7.32
standard deviation = 1.41

5 a mean = 67.2

b standard deviation = 4.94

c range = 18 d IQR = 6

6 a $x = 45$

b standard deviation = 15.6

c range = 46

d IQR = 27

7 a $m = 9$ b mean = 12.7

c standard deviation = 1.49

d IQR = 2

8 a range = 7, IQR = 3

b mean = 7.92
standard deviation = 1.87

9 mean = 32 min
standard deviation = 7.57 min

10 a girls' mean = 55.4 and
standard deviation = 11.5
boys' mean = 51.8 and
standard deviation = 23.1

b There is a big difference in the standard deviation implying that the boys' marks are much more widespread than the girls' marks.

Review exercise

Paper 1 style questions

1 a 9 b 5.5

2 a 1 b 5.5

3 a 6.62 b 6 c 6

4 a i 6.54 m ii 3.08 m

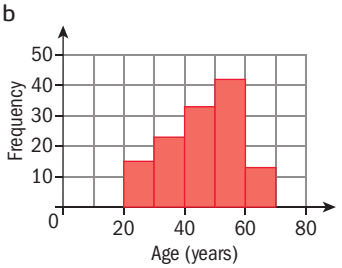
b 6.1 m

5 a discrete b 1.93

c 1.25

6 a 46.2

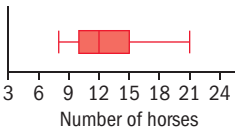
b



7 a 41 b 31

c 49 d 18

8



Paper 2 style questions

1 a i mean = 98

ii mode = 96

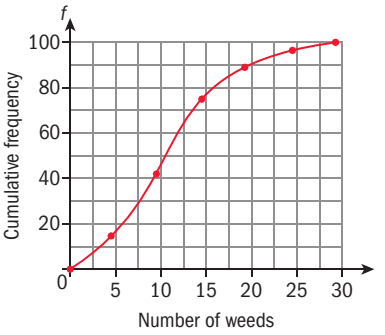
b i

Number	Frequency
94	1
96	4
97	3
98	3
99	3
100	3
101	2

ii median = 98, IQR = 4

2 a i

Number	Cumulative frequency
< 4.5	18
< 9.5	43
< 14.5	75
< 19.5	89
< 24.5	96
< 29.5	100



ii Median is approximately 10.6

iii 11%

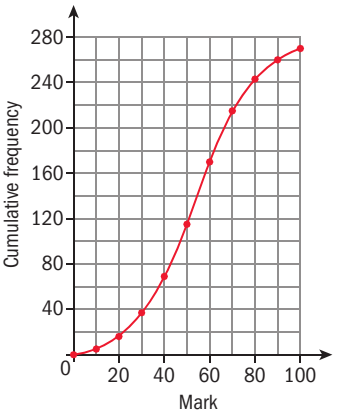
b i Mean is approximately 10.95

ii Standard deviation is approximately 6.53

iii Total number of weeds is approximately 87 60000

3 a

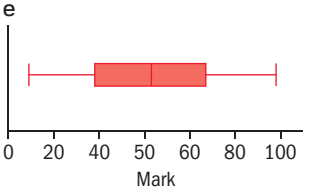
Mark	Cumulative frequency
< 10	3
< 20	17
< 30	38
< 40	73
< 50	115
< 60	170
< 70	213
< 80	245
< 90	260
< 100	270



b 53 c 67 – 38 = 29

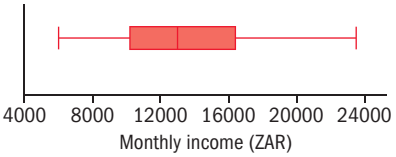
d 48

e



4 a Median is approximately 13 000, IQR is approximately 6200

b



c

Monthly income (ZAR)	Frequency
$6000 \le x < 8000$	10
$8000 \le x < 10000$	19
$10000 \le x < 12000$	30
$12000 \le x < 14000$	29
$14000 \le x < 16000$	20
$16000 \le x < 18000$	15
$18000 \le x < 20000$	11
$20000 \le x < 22000$	9
$22000 \le x < 24000$	7

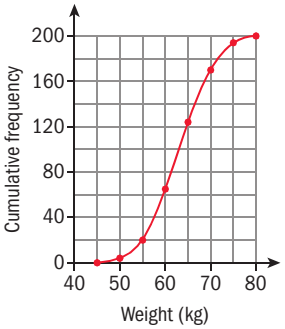
d Mean is approximately 13 747 and standard deviation 4237

5 a Modal group is 60–65, $60 \le w < 65$

b Mean is approximately 63.2 and standard deviation 6.62

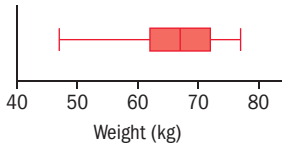
c

Weight (kg)	Cumulative frequency
< 50	4
< 55	20
< 60	65
< 65	123
< 70	166
< 75	194
< 80	200



d median = 63, lower quartile = 59, upper quartile = 68

e

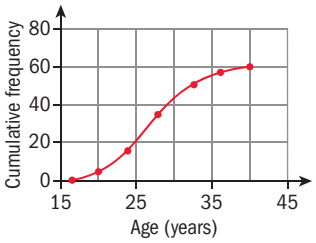


6 a Mean is approximately 26.9 and standard deviation 4.40

b Modal class is 24–28

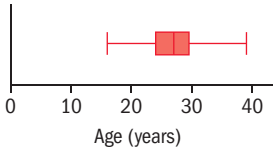
c

Age (years)	Cumulative frequency
≤ 20	3
≤ 24	15
≤ 28	37
≤ 32	52
≤ 36	59
≤ 40	60



d median = 27, IQR = 5.5

e

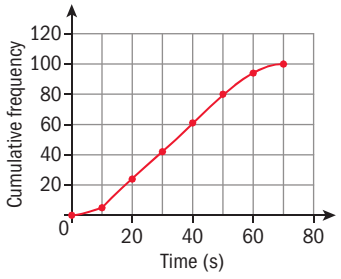


7 a Modal class is 30–40

b Estimate of mean is 34.3 and standard deviation is 16.6

c

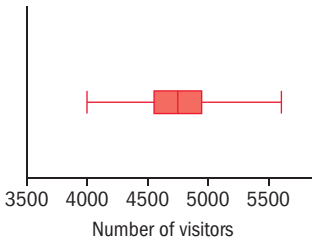
Time (s)	Cumulative frequency
< 10	5
< 20	24
< 30	42
< 40	64
< 50	80
< 60	92
< 70	100



d median = 33, IQR = 25.5

8 a median = 4750, lower quartile = 4570, upper quartile = 5000

b



c

Visitors	Frequency
$4000 \le x < 4200$	1
$4200 \le x < 4400$	3
$4400 \le x < 4600$	5
$4600 \le x < 4800$	9
$4800 \le x < 5000$	6
$5000 \le x < 5200$	3
$5200 \le x < 5400$	2
$5400 \le x < 5600$	1
$5600 \le x < 5800$	1

d Modal class is 4600–4800

e Estimate of mean is 4784 and standard deviation is 355

9 a

Weight(x kg)	Frequency
$120 \le x < 130$	10
$130 \le x < 140$	35
$140 \le x < 150$	75
$150 \le x < 160$	50
$160 \le x < 170$	15
$170 \le x < 180$	10
$180 \le x < 190$	5

b Modal class is $140 \le x < 150$

c Estimate of mean is 149

Chapter 3

Skills check

1 a $h = 20$ cm

b $\sqrt{50}$ cm = 7.07 (3 sf)

2 a i $(0, 6)$ ii $\sqrt{40} = 6.32$ (3 sf)

b $q = 3, p = 6$

Exercise 3A

1 a -1 b 8 c -8 d 1

2 a i A(1, 5), B(0, 1) ii 4

b i A(-1, 5), B(0, 1), ii -4

c i A(0, 3), B(3, 2), ii $-\frac{1}{3}$

d i A(0, -1), B(1, 0), ii 1