

Chapter 3 Answers

Exercise 3A

- 1 a 7
b 9
c 4
- 2 a £290
b $Q_1 = 400$, $Q_3 = 505$.
c £105
- 3 a 25, 35, 55, 65, 90, 100; total 100
b $Q_1 = 0.5$, $Q_3 = 4$.
c 3.5 hours
- 4 1 ($Q_1 = 9$, $Q_3 = 10$)
- 5 a 3, 9, 19, 26, 31
b 389 kg
c 480 kg
d 90.8 kg
- 6 a 1100
b 1833
c 733
- 7 a 71
b 24.6

Exercise 3B

- 1 a 8, 20, 56, 74, 89, 99
b 10
c 8
d 9
- 2 a 11, 46, 80, 96, 106, 111
b £17.10
c £28.25
d £11.15
- 3 £81.90
- 4 6.2 minutes
- 5 a 49
b 38.7 minutes
c 48.8 minutes

Exercise 3C

- 1 a 3
b 0.75
c 0.866
- 2 3.11 kg

- 3 a 178 cm
b 59.9 cm^2
c 7.74 cm
- 4 mean 5.44, standard deviation 3.25
- 5 a 25
b 4
- 6 a The mean for both routes is 14.
b Route 1 has variance 4 and standard deviation 2. Route 2 has variance 5.33 and standard deviation 2.31.
c Route 1 would be best. Although the means are the same, the standard deviation for route 1 is lower, so this route is more reliable.

Exercise 3D

- 1 133
2 7.35
3 a

Number of £'s (x)	Number of students (f)	$f x$	$f x^2$
8	14	112	896
9	8	72	648
10	28	280	2800
11	15	165	1815
12	20	240	2880
Totals	85	869	9039

- b 1.82
c £1.35

- 4 a

Number of days absent (x)	Number of students (f)	$f x$	$f x^2$
0	12	0	0
1	20	20	20
2	10	20	40
3	7	21	63
4	5	20	80

- b 1.51
c 1.23

5 a

Lifetime in hours	Number of parts	Mid-point (x)	$f x$	$f x^2$
$5 < h = 10$	5	7.5	37.5	281.25
$10 < h = 15$	14	12.5	175.0	2187.50
$15 < h = 20$	23	15.5	402.5	7043.75
$20 < h = 25$	6	22.5	135.0	3037.50
$25 < h = 30$	2	27.5	55.0	1512.50

b variance 22.0, standard deviation 4.69 hours

6 variance 21.25, standard deviation 4.61

6 a mean 15.8, standard deviation 2.06

b The mean wing span will decrease.

7 a 98.75

b 104

c 5.58

d 4.47

Exercise 3E

1 a 5.08

b i 5.08

ii 5.08

iii 5.08

2 i 70.7

ii 70.7

iii 70.7

3 a 0.28

b 0.675

c 2.37

d 6.5

4 2.34

5 1.76 hours

6 22.9

7 416

Mixed exercise 3F

1 a 6

b 3

c 9

d 6

2 37.5

3 a 20.5

b 34.7

c 14.2

4 15.5 m

5 a 40.9

b 54

c 13.1

d 10.1