Practice Book *UNIT 7 Ratio and Proportion*   Answers

7.1 Equivalent Ratios

1. (a) 1 : 3   (b) 1 : 5   (c) 1 : 5   (d) 3 : 1
    (e) 6 : 1   (f) 6 : 5   (g) 2 : 3   (h) 1 : 4
    (i) 1 : 5   (j) 4 : 5   (k) 3 : 4   (l) 2 : 7

2. (a) 1 : 2.5   (b) 1 : 0.6   (c) 1 : 3.5   (d) 1 : 8.5
    (e) 1 : 2.5   (f) 1 : 2.5   (g) 1 : 1.5   (h) 1 : 0.8
    (i) 1 : 2.4

3. (a) 8 : 1   (b) 0.8 : 1   (c) 0.7 : 1
    (d) 7.5 : 1   (e) 3.6 : 1   (f) 1.2 : 1

4. 600 : 900 = 2 : 3

5. (a) 2 : 5   (b) 1 : 2.5   (c) 0.4 : 1

6. (a) 3 : 8   (b) 1 : 2.67 or $1 : 2\frac{2}{3}$ (c) 0.375 : 1

7. (a) 4 : 85   (b) 1 : 21.25

8. (a) 1 km   (b) 4.5 km   (c) 15 km

9. 1 cm on map = 2 km.   60 km = 30 cm on map.

10. 1 cm on map = 3 km.   Scale = 1 : 300 000

7.2 Direct Proportion

1. (a) £48   (b) £72   (c) £160

2. (a) 1000 ml or 1 litre   (b) 1400 ml or 1.4 litres

3. (a) £3.28   (b) £9.84   (c) £24.60

4. (a) 1200 grams or 1.2 kg   (b) 4200 grams or 4.2 kg
    (c) 14 400 grams or 14.4 kg

5. (a) 28p   (b) 48p   (c) £2.00

6. (a) £8.64   (b) 72p per m

7. (a) *n* = 55   (b) £7.15

8. 48 people

9. 378 people

10. 6570 kg

Answers

7.3 Proportional Division

1. (a) £20 : £30   (b) £20 : £80   (c) £44 : £16   (d) 20 kg : 60 kg

2. (a) £30 : £25 : £5   (b) £27 : £36 : £45   (c) 5 kg : 10 kg : 15 kg

   (d) 36 litres : 24 litres : 15 litres

3. £32 : £48

4. 36 ml : 180 ml (acid : water)

5. 15 ml : 25 ml   (blue : yellow)

6. £100 : £110 : £90

7. (a) 35 ml : 25 ml : 20 ml   (b) 437.5 ml : 312.5 ml : 250 ml

8. (a) 50 ml : 50 ml : 100 ml   (b) 75 ml : 75 ml : 50 ml

   (c) 112.5 ml : 50 ml : 37.5 ml

9. £400 : £50 : £350

10. 5 : 15 : 5

7.4 Linear Conversion

1. (a) 54 Ff   (b) 900 Ff   (c) £9   (d) £3.11 (nearest pence)

2. (a) 150 mm   (b) 2000 mm   (c) 2 inches   (d) 40 inches

3. (a) £5   (b) £0.40   (c) 11 shillings   (d) 15 shillings

4. (a) 2250 grams   (b) 4050 grams   (c) 4 lbs   (d) 7 lbs   (e) 0.6 lb

5. (a) 48 km   (b) 33.6 km   (c) 50 miles   (d) 125 miles

6. (a) £61.35   (b) £153.37   (c) £46.01

7. (a) £5.08   (b) £1.02   (c) £253.81

8. (a) 0.9 lb   (b) 0.4 lb   (c) 10.7 oz

9. (a) £285.71   (b) £6.38   (c) 3.57 DM

10. (a) 6.8 litres   (b) 35.2 pints

Answers

7.5 Inverse Proportion

1. (a) 5 hours   (b) 6 hours   (c) 7.5 hours

2. Time at 50 mph $=$ 8.4 hours   (8 hours 24 mins)

    Time at 70 mph $=$ 6 hours (6 hours 0 mins)

    Time saved $=$ 2 hours 24 mins

3. Time at 30 mph $=$ 2 hours (2 hours 0 mins)

    Time at 40 mph $=$ 1.5 hours (1 hour 30 mins)

    Time saved $=$ 30 mins

4. Time on own $=$ 20 mins

    Time with Jennifer $=$ 15 mins

    Time saved $=$ 5 mins

5. (a) 15 mins   (b) 10 mins   (c) 6 mins

6. (a) 15 mins   (b) $1\frac{1}{2}$ hours   (c) $1\frac{2}{3}$ hours (1 hour 40 mins)

7. Normal speed $=$ 60 mph

    Increased speed $=$ 67.5 mph

    Speed increase $=$ 7.5 mph

8. Speed on Monday $=$ 4 mph.   Speed on Tuesday $=$ 3 mph.

9. (a) 0.5 kg   (b) 0.1 kg less   (0.4 kg each)

10. (a) 4 hours   (b) $13\frac{1}{3}$ hours $=$ 13 hours 20 mins