Chapter 5: Measurement Homework Solutions

5A Length and perimeter

1.

7 cm → 70 mm

12.5 m → 1250 cm

15.48 km → 15480 m

5 m → 5000 mm

0.0036 km → 3.6 m

470 mm → 47 cm

7850 m → 7.85 km

56,000 cm → 0.56 km

0.0078 m → 7.8 mm

0.0352 km → 3520 cm

14,500 mm → 14.5 m

251,000 cm → 2.51 km

82,300 mm → 82.3 m

21,000 mm → 0.021 km

0.017 m → 17 mm

2.

a. 26 m
b. 47 cm
c. 54 m
d. 52 cm
e. 106 cm
f. 84 m

3.

879 000 mm → 0.879 km
9.3 cm → 93 mm
4.2 m → 420 cm
11.67 km → 11 670 m
2.7 m → 2700 mm
0.0048 km → 4.8 m
930 mm → 93 cm

1420 m → 1.42 km
93 000 cm → 0.93 km
0.0015 m → 1.5 mm
0.0124 km → 1240 cm
67 800 mm → 67.8 m
421 000 cm → 4.21 km
173 500 mm → 173.5 m
6 500 mm → 0.0065 km

4.

a. 84 m
b. 61 cm
c. 56 cm
d. 36 cm
e. 84 mm
f. 26 m

5B Circumference of a circle

1. The circumference C of a circle with radius r is given by

$$C = 2\pi r.$$

With $r = 2.8\,\text{m}$:

$$C = 2\pi \times 2.8 \;\approx\; 17.5929\,\text{m}.$$

Rounded to one decimal place, $C \approx \mathbf{17.6}\,\text{m}$.

2. For a swimming pool of radius $r = 7.2\,\text{m}$:

$$C = 2\pi \times 7.2 \;\approx\; 45.2389\,\text{m}.$$

Rounded to one decimal place, $C \approx \mathbf{45.2}\,\text{m}$.

3. A table of diameter $d = 1.6\,\text{m}$ implies the radius $r = 0.8\,\text{m}$. Then

$$C = 2\pi \times 0.8 \;\approx\; 5.0265\,\text{m}.$$

Rounded to one decimal place, $C \approx \mathbf{5.0}\,\text{m}$.

4. An athlete runs on a circular track of radius $r = 35\,\text{m}$.

- Track circumference:

$$C_{\text{track}} = 2\pi \times 35 \;\approx\; 219.911\,\text{m}.$$

- In one day, the athlete runs 8 laps: $8 \times 219.911 \approx 1759.3\,\text{m}$.
- Over 6 days: $1759.3 \times 6 \approx 10555.8\,\text{m}$.

5.

a. 31.4 m
b. 38.55 m
c. 25.12
d. 18.84

5C Area of basic shapes

1.
   a. 69.82 cm^2
   b. 153.5 cm^2
   c. 192.5 cm^2
   d. 126 cm^2
   e. 121.5 cm^2 (change “7” into “5”; “8” into “7”; “11” into “9” and “20” into “15”)
   f. 53.48 cm^2
   g. 232.82 cm^2
   h. 115.83 cm^2
   i. 48.225 cm^2

5D Area of kites, rhombuses and trapeziums

1.
   a. 42 cm^2
   b. 90 cm^2
   c. 5.25 cm^2

2.
   a. 27 m^2
   b. 44 cm^2
   c. 270 mm^2
   d. 40 m^2
   e. 27.5 cm^2
   f. 77 mm^2

3. **Rectangular garden cost:** $1260

4. **Triangular bed cost:** $337.50

5. **Diamond-shaped lawn cost:** $1350

5E Area of a circle

1.
   a. 78.54 m^2
   b. 88.36m^2
   c. 25.14
   d. 12.57

2.
   a. 19π = 59.69m^2
   b. 6 packs

3.
   a.
   $r \approx$ 11.97 cm

   b.
   $C \approx$ 75.23 cm

5F Area of sectors

1.
   a. 1.57
   b. 37.7
   c. 81.2

2.
   a. 73.8 m^2
   b. 62
   c. 182.8

3.
   Circular garden (diameter 60 cm):
   $A = 900\pi \approx 2827.43\,\text{cm}^2.$

4.
   Inscribed circle in a square (diagonal 16 m):
   $A = 32\pi \approx 100.53\,\text{m}^2.$

5G Surface area of a prism

1.
   a. 342 m^2
   b. 1210 cm^2
   c. 752.4cm^2
   d. 430 cm^2
   e. 136cm^2
   f. 194 cm^2

2. 1600 cm^2

3. 706.5 cm^2

5H Volume and capacity

1.
   a. 4515 cm^3
   b. 7800 cm^3
   c. 21420 cm^3

2.
   a. 500 m^3
   b. 500 kL

3.
   a. 42cm^3
   b. 42kL

4.
   a. 240 m^3
   b. 240kL

5.
   a. 756m^3
   b. 756 kL

5I Volume of prisms and cylinders

1.
   a. 339.29 m^3
   b. 8143.01m^3
   c. 4712.39 m^3
   d. 60 m^3
   e. 2.125 m^3
   f. 76.5m^3
   g. 5400 m^3
   h. 1840 m^3
   i. 2080 m^3

2.
   a. 25mm=2.5cm
      30mm=3.0cm
      20mm=2.0cm
   b. 15 cm^3
   c. 10800 cm^3
   d. 720