5 Write these lengths in order of size, starting with the smallest.

0.03 m 2.9 cm 32 mm 0.000 02 km

3cm 3·2cm = 0·02m = 2cm

0·00002km , 2·9cm , 0·03m , 32mm [2]

smallest

5 Change 12 millimetres into metres.

12mm = 1·2cm

= 0·012m 0·012 m [1]

4 Change 62 000 millimetres into kilometres.

62 000mm = 62m

= 0·062km 0·062 km [1]

7 The scale of a map is 1 : 125 000.
On a map, the length of an island is 9.4 cm.

Calculate the actual length of the island, giving your answer in kilometres.

1 : 125 000 ×9·4

×9·4 9·4 : 1175 000

1175 000cm = 1175m

= 11·75km 11·75 km [2]

4 The distance from town *A* to town *B* on a map is 3.5 cm.
The scale on the map is 1 : 250 000.

Find the actual distance, in kilometres, from town *A* to town *B*.

1 : 250 000 ×3·5

×3·5 3·5 : 875 000

875 000cm = 8750m

= 8·75km 8·75 km [2]

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7 Change 457 000 cm^2 into m^2.

$1m = 100cm$

$1m^2 = 100^2 cm^2$

$= 10000 cm^2$

$457000 \div 10000 = 45.7$

45.7 m^2 [1]

4 Change 270 mm^2 into m^2.

$1m = 1000mm$

$1m^2 = 1000^2 mm^2$

$= 1000000 mm^2$

$270 \div 1000000 = 0.00027$

0.00027 m^2 [1]

4 Change 0.2 m^2 into cm^2.

$1m = 100cm$

$1m^2 = 100^2 cm^2$

$= 10000 cm^2$

$0.2 \times 10000 = 2000$

2000 cm^2 [1]

5 Convert 0.17 m^2 into cm^2.

$0.17 \times 10000 = 1700$

1700 cm^2 [1]

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4 Change 600 cm^3 into m^3.

$1m = 100cm$

$1m^3 = 100^3 cm^3$

$= 1000000 cm^3$

$600 \div 1000000 = 0.0006$

0.0006 m^3 [1]

5 (a) Convert 780 cm^2 into m^2.

$1m = 100cm$

$1m^2 = 100^2 cm^2$

$= 10000 cm^2$

$780 \div 10000 = 0.078$

0.078 m^2 [1]

(b) Convert 0.037 m^3 into cm^3.

$1m = 100cm$

$1m^3 = 100^3 cm^3$

$= 1000000 cm^3$

37000 cm^3 [1]

$0.037 \times 1000000 = 37000$

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14 A map has a scale of 1 : 200 000.

Find the area, in square kilometres, of a lake that has an area of 12.4 cm^2 on the map.

LSF: 1 cm : 200 000 cm
1 cm : 2000 m
1 cm : 2 km

ASF: 1^2 cm^2 : 2^2 km^2
1 cm^2 : 4 km^2

1 cm^2 : 4 km^2
×12.4 → 12.4 cm^2 : 49.6 km^2 ← ×12.4

49.6 ..... km^2 [2]

13 On a map, a lake has an area of 32 cm^2.
The scale of the map is 1 : 24 000.

Calculate the actual area of the lake.
Give your answer in km^2.

LSF: 1 cm : 24 000 cm
1 cm : 240 m
1 cm : 0.24 km

ASF: 1^2 cm^2 : 0.24^2 km^2
1 cm^2 : 0.0576 km^2

1 cm^2 : 0.0576 km^2
×32 → 32 cm^2 : 1.8432 km^2 ← ×32

1.8432 ..... km^2 [2]

20 A lake has an area of 3 km^2.
On a map the area of the lake is 18.75 cm^2.

Find the scale of the map in the form 1 : n.

ASF: 18.75 cm^2 : 3 km^2
÷3 → 6.25 cm^2 : 1 km^2 ← ÷3

LSF: $\sqrt{6.25}$ cm : $\sqrt{1}$ km
2.5 cm : 1 km
2.5 cm : 1000 m
2.5 cm : 100 000 cm
÷2.5 → 1 : 40 000 ← ÷2.5

1 : 40 000 ..... [3]

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11 A warehouse has a floor area of 800 m^2.
The plan of the warehouse is drawn to a scale of 1 : 50.

Calculate the floor area on the plan.
Give your answer in square centimetres.

LSF: 1cm : 50cm
1cm : 0.5m
ASF: $1^2 cm^2 : 0.5^2 m^2$
$1 cm^2 : 0.25 m^2$

$1 cm^2 : 0.25 m^2$ (800 ÷ 0.25 ↓)
$3200 cm^2 : 800 m^2$ (×3200 ↓, ×3200 ↓)

3200 ..... cm^2 [3]

3 $1 m^2 = 10^n cm^2$

Find the value of n.

LSF: 1m = 100cm
ASF: $1^2 m^2 = 100^2 cm^2$
$1 m^2 = 10000 cm^2$
$1 m^2 = 10^4 cm^2$

n = 4 ..... [1]

9 Change 300 m/min to km/h.

300m every minute (×60 ↓)
= 18000m every hour
= 18 km every hour

18 ..... km/h [2]

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