Lesson 1 Centimetre

-------- 1 centimetre (cm)

The nail is ____6____ cm long.   Line segment *AB* is _____ cm long.

Find the length of each picture to the nearest centimetre.

1. _____ cm

2. _____ cm
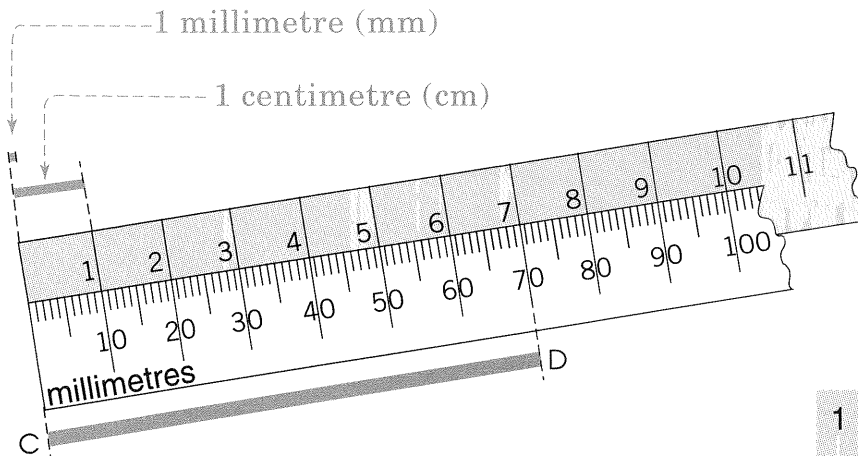
3. _____ cm

4. _____ cm

Sugarless GUM

5. _____ cm

6. _____ cm

Use a ruler to draw a line segment for each measurement.

7. 5 cm

8. 8 cm

9. 3 cm

10. 6 cm

CHAPTER 14

Lesson 2   Millimetre

- - - - -1 millimetre (mm)

- - - - - - 1 centimetre (cm)

1 centimetre = 10 millimetres
1 cm = 10 mm

Line segment *CD* is _____7_____ cm or _____ mm long.

Find the length of each line segment to the nearest centimetre.
Then find the length of each line segment to the nearest millimetre.

      a   *b*

1. _____ cm   _____ mm

2. _____ cm   _____ mm

3. _____ cm   _____ mm

4. _____ cm   _____ mm

Find the length of each line segment to the nearest millimetre.

5. _____ mm

6. _____ mm

7. _____ mm

8. _____ mm

Use a ruler to draw a line segment for each measurement.

9. 50 mm

10. 80 mm
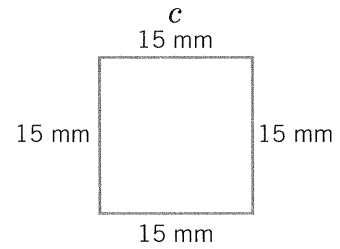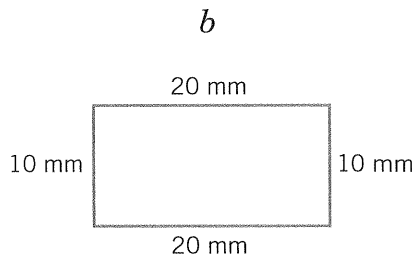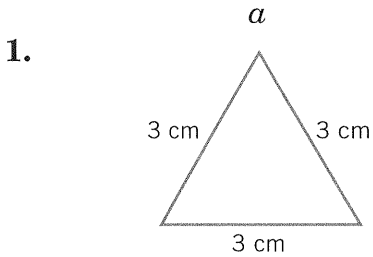
11. 25 mm

12. 55 mm

Lesson 3 Perimeter

The distance around a figure is called its **perimeter**.

6 cm
3 cm
5 cm

6
3
+5
14

The perimeter is __14__ cm.

20 mm
20 mm   20 mm
20 mm

20
20
20
+20
80
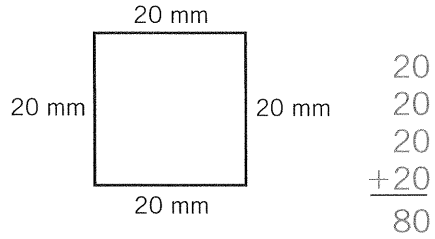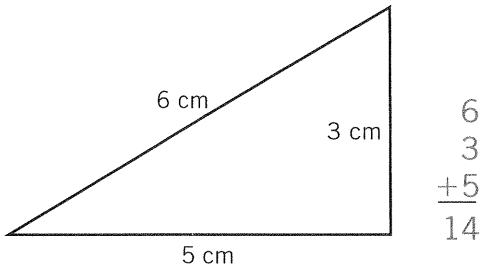
The perimeter is _____ mm.

Find the perimeter of each figure.

1.

a
3 cm 3 cm
3 cm

perimeter: _____ cm

b
20 mm
10 mm   10 mm
20 mm

perimeter: _____ mm

c
15 mm
15 mm   15 mm
15 mm

perimeter: _____ mm

Find the length of each side in centimetres. Then find the perimeter.

2.

a

perimeter: _____ cm

b

perimeter: _____ cm

Find the length of each side in millimetres. Then find the perimeter.

3.

perimeter: _____ mm

perimeter: _____ mm

Lesson 3 Problem Solving

Solve each problem.

1. Find the perimeter of the rectangle to the nearest centimetre.

The perimeter is _____ cm.

2. Find the perimeter of the blue square in centimetres. Do the same for the black square.
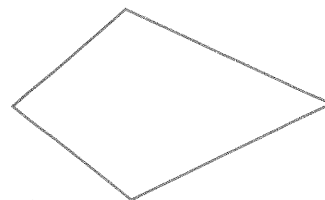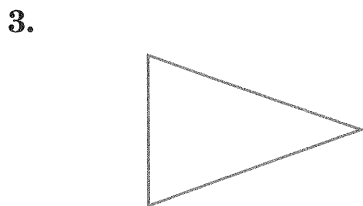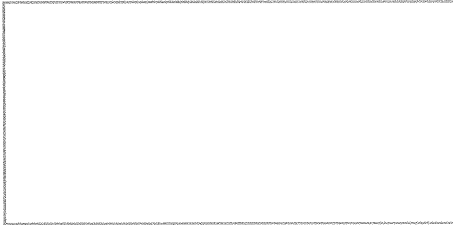
_____ cm is the perimeter of the blue square.

_____ cm is the perimeter of the black square.

3. How much greater is the perimeter of the blue square than that of the black square?

The perimeter is _____ cm greater.

What is the combined distance around the two squares?

The combined distance is _____ cm.

Estimate the perimeter of each of the following in centimetres. Then find each perimeter to the nearest centimetre.
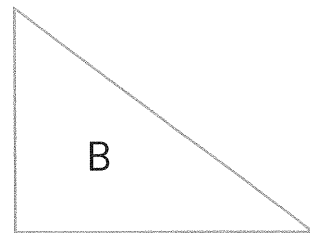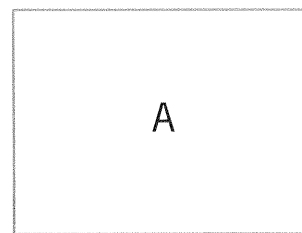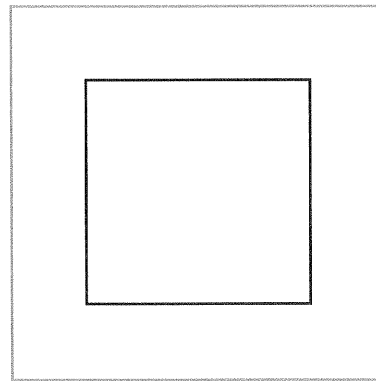
	Object	Estimate	Perimeter
4.	rectangle A	_____ cm	_____ cm
5.	triangle B	_____ cm	_____ cm
6.	cover of this book	_____ cm	_____ cm
7.	cover of a dictionary	_____ cm	_____ cm
8.	top of a chalk box	_____ cm	_____ cm

A

B

Lesson 4 Area

To find the area of a square or rectangle, multiply the length by the width.

12 cm

8 cm
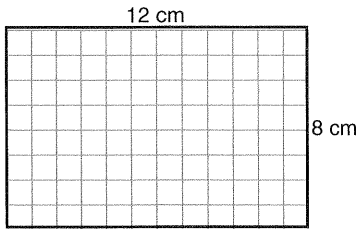
The length of the rectangle is 12 cm.

The width of the rectangle is 8 cm.

$$\begin{array}{r} 12 \\ \times\ 8 \\ \hline 96 \end{array}$$

The area of the rectangle is 96 square centimetres (cm^2).

Find the area of each square or rectangle.

	a	*b*	*c*

1.

5 cm — 6 cm

8 mm — 2 mm

5 cm — 5 cm

_____ cm^2 _____ square millimetres (mm^2)   _____ cm^2

2.

16 mm — 4 mm

15 cm — 8 cm

13 mm — 6 mm

_____ mm^2 _____ cm^2 _____ mm^2

3.

8 cm — 8 cm

20 mm — 3 mm

7 cm — 5 cm

_____ cm^2 _____ mm^2 _____ cm^2

4.

18 mm — 1 mm

7 cm — 7 cm

12 mm — 15 mm

_____ mm^2 _____ cm^2 _____ mm^2

CHAPTER 14

Lesson 4 Problem Solving

Solve each problem.

1. The top of a rectangular table measures 150 cm in length and 120 cm in width. What is the area of the table top?

   The area of the table top is _____ cm².

   1.

2. The top of a CD case measures 14 cm in length and 12 cm in width. What is the area of the top of the CD case?

   The area of the CD case is _____ cm².

   2.

3. A regular piece of paper measures 28 cm in length and 22 cm in width. What is the area of the paper?

   The area of the paper is _____ cm².

   3.

4. Mrs. Schultz wears a square pin that measures 9 mm on each side. What is the area of the pin?

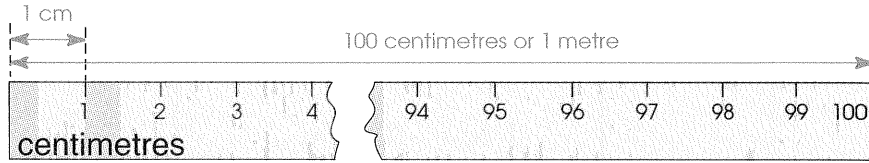   The area of the pin is _____ mm².

   4.

5. Mr. Jefferson's car leaked oil that made a rectangular puddle. The puddle was 58 cm long and 39 cm wide. What is the area of the puddle?

   The area of the puddle is _____ cm².

   5.
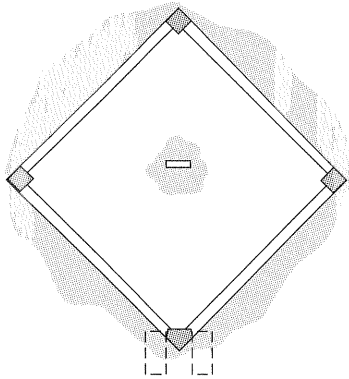
6. The Smith family's lawn measures 15 m wide and 7 m long. What is the area of the Smiths' lawn?

   The area of the lawn is _____ square metres (m²).

   6.

Lesson 5 Metre and Kilometre

1 cm
100 centimetres or 1 metre

| 1 | 2 | 3 | 4 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

centimetres

100 centimetres = 1 metre
100 cm = 1 m

Suppose you run around a baseball diamond nine times. You would run about 1 kilometre (km).

1000 metres = 1 kilometre
1000 m = 1 km

Find the length of each of the following to the nearest metre.

	Object	Length
1.	width of a door	_____ m
2.	height of a door	_____ m
3.	length of a chalkboard	_____ m
4.	height of a cabinet	_____ m

Solve each problem.

5. You and some classmates lay five of your math books like this. Find the length to the nearest metre.
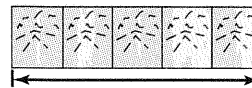
The length is _____ m.

6. Marcus lives 3 km from school. How many metres is that?

The distance is _____ m.

7. Ms. Kahn can drive 87 km in 1 h. How many kilometres can she drive in 4 h?

She can drive _____ km in 4 h.

6.

7.

CHAPTER 14

Lesson 6 Units of Length

25 cm = __?__ mm
1 cm = 10 mm
1   10
×25   ×25
25   250
25 cm = __250__ mm

18 m = __?__ cm
1 m = 100 cm
1   100
×18   ×18
18   1800
18 m = __1800__ cm

9 m = __?__ mm
1 m = 1000 mm
1   1000
×9   ×9
9   9000
9 m = _____ mm

7 km = __?__ m
1 km = 1000 m
1   1000
×7   ×7
7   7000
7 km = _____ m

Complete the following.

	a	*b*
1.	9 cm = _____ mm	7 cm = _____ mm
2.	9 m = _____ cm	6 m = _____ cm
3.	9 m = _____ mm	4 m = _____ mm
4.	9 km = _____ m	5 km = _____ m
5.	16 m = _____ cm	8 m = _____ mm
6.	89 km = _____ m	46 m = _____ cm
7.	28 cm = _____ mm	18 km = _____ m
8.	13 m = _____ mm	42 cm = _____ mm
9.	16 m = _____ mm	10 m = _____ cm
10.	10 km = _____ m	25 m = _____ mm

Lesson 7 Litre and Millilitre

A box this size holds 1 litre (L) or 1000 millilitres.

10 cm

10 cm

10 cm

A box this size holds 1 millilitre (mL).

1 cm
1 cm
1 cm
1 cm
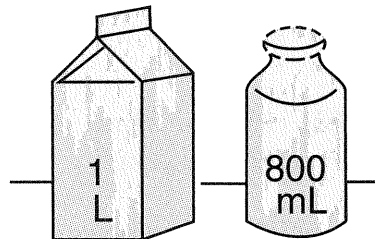
1 litre = 1000 millilitres
1 L = 1000 mL
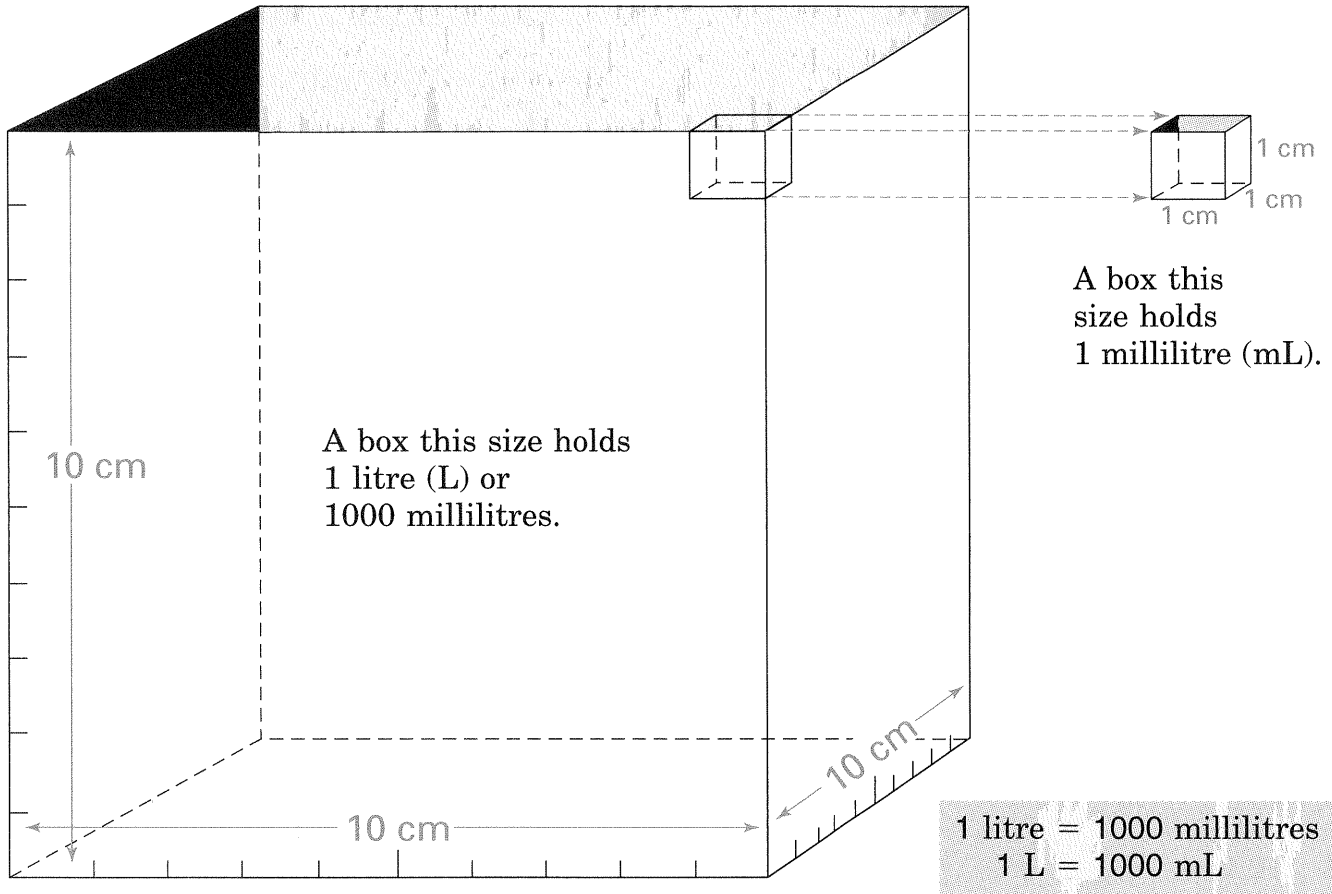
Solve each problem.

1. How many millilitres does the carton hold?

The carton holds _____ mL.

2. Which container holds more liquid, the carton or the bottle?

The _____ holds more liquid.

1 L

800 mL

3. A small milk carton holds 236 mL of milk. How many millilitres of milk are in eight cartons?

There are _____ mL of milk.

3.

4. Lyle can drive his car 11 km per litre of gasoline. How far can he drive on 80 L?

He can go _____ km.

4.

Lesson 8 Litre and Millilitre

```
6 L = ___?___ mL

1 L = 1000 mL
  ↓        ↓
  1       1000
 ×6        ×6
  6       6000
  ↓        ↓
6 L = _6000_ mL
```

```
13 L = ___?___ mL

1 L = 1000 mL
  ↓        ↓
  1       1000
 ×13      ×13
  ↓        ↓
13 L = _____ mL
```

Complete the following.

	a	b

1. 1 L = _____ mL   2 L = _____ mL

2. 3 L = _____ mL   6 L = _____ mL

3. 7 L = _____ mL   9 L = _____ mL

4. 10 L = _____ mL   11 L = _____ mL

5. 25 L = _____ mL   30 L = _____ mL

Solve each problem.

6. One tablespoon holds 15 mL. How many table-   6.
spoons of soup are in a 225-mL can?

There are _____ tablespoons of soup.

7. Barb used 8 L of water when she washed her   7.
hands and face. How many millilitres of water did
she use?

She used _____ mL of water.

There are 28 students in Barb's class. Suppose
each student uses as much water as Barb. How
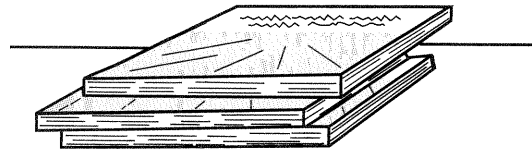many litres would be used?

_____ L would be used.

Lesson 9   Gram, Milligram, and Kilogram

A vitamin tablet
has a mass of about
100 milligrams (mg).

A dime has a mass
of about 2 grams.

Three of your math
books have a mass of about
1 kilogram (kg).

1 gram = 1000 milligrams	1000 grams = 1 kilogram
1 g = 1000 mg	1000 g = 1 kg

Use the above diagrams to do problems **1–5.**

1. What is the mass of two vitamin tablets in milligrams?

The mass is _____ mg.

1.

2. Find the mass of 10 vitamin tablets in milligrams. Then find the mass in grams.

The mass is _____ mg or _____ g.

2.

3. Find the mass in grams of a roll of 50 dimes.

The mass is _____ g.

3.

4. What is the mass in grams of 10 rolls of dimes (500 dimes)? What is the mass in kilograms?

The mass is _____ g or _____ kg.

4.

5. Find the mass in kilograms of a shipment of 30 math books. Then find the mass in grams.

It is _____ kg or _____ g.

5.

Tell whether you would use *milligrams, grams,* or *kilograms* to find the mass of each object.

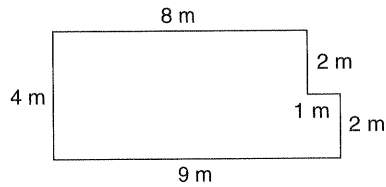| *a*	*b*	*c*
6. a nickel _____	a grain of sand _____	a bicycle _____
7. a pin _____	a new pencil _____	yourself _____

Lesson 10 Problem Solving

Solve each problem.

1. LuKeesha found a butterfly whose wings were
   6 cm long. How long are the butterfly's wings in
   millimetres?

   The butterfly's wings are_____ mm long.

   1.

2. Trevor wants to put a fence around his garden.
   How much fence does he need?

   Trevor needs _____ m of fence.

   2.

3. One tablespoon holds 15 mL. Rashan had to take
   4 tablespoons of medicine. How many millilitres
   of medicine did he take?

   Rashan took _____ mL of medicine.

   3.

4. Linda can lift 25 kg at the gym. How many grams
   can she lift?

   Linda can lift_____ g.

   4.

5. Sally's kitchen window measures 115 cm by 73 cm.
   What is the area of her window?

   The area of the window is_____ cm².

   5.

Lesson 11   Mass

7 g = ____?____ mg
1 g = 1000 mg
1   1000
×7   ×7
7   7000
7 g = __7000__ mg

18 kg = ____?____ g
1 kg =   1000 g
1   1000
×18   ×18
18   18 000
18 kg = _____ g

Complete the following.

                    a   b
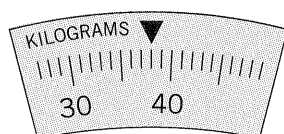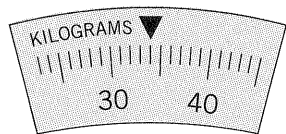
1. 5 kg = _____ g   9 g = _____ mg

2. 25 g = _____ mg   78 kg = _____ g

3. Tell the mass shown on each scale.

Al's Mass Last Year   Al's Mass This Year

KILOGRAMS ▼   KILOGRAMS ▼
30   40   30   40

_____ kg   _____ kg

4. How many kilograms did Al gain?

Al gained _____ kg.

5. Complete the table.

Sarah's Breakfast

Food	Protein	Calcium
1 biscuit of shredded wheat	2 g	11 mg
1 serving of whole milk	8 g	291 mg
1 banana	1 g	10 mg
Total	_____ g	_____ mg

6. Give the amount of protein Sarah had for breakfast in *milligrams*.

Sarah had _____ mg of protein.

7. How many milligrams of calcium are in 4 servings of whole milk?

_____ mg of calcium are in 4 servings of whole milk.

CHAPTER 14

Lesson 12 Temperature (Celsius)

Use degrees Celsius to measure the temperature in metric units.
Read the top of the liquid in the thermometer to tell the temperature.
Write 23°C.

In degrees Celsius, water freezes at 0°C and water boils at 100°C.
In degrees Celsius, a person's normal body temperature is 37°C.
Use a minus sign to show temperatures colder than 0°C: −12°C.

Celsius

°C
100
90
80
70
60
50
40
30
10
−20
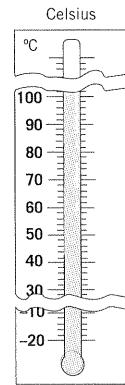
Read each thermometer and write the temperature in degrees Celsius.

| *a* | *b* | *c* | *d* |

1.

a: 30 25 20
b: −10 −15 −20
c: 30 25 20
d: 20 15 10

_____ _____ _____ _____

2.

a: 45 40 35
b: 10 5 0
c: 0 −5 −10
d: 25 20 15

_____ _____ _____ _____

Write the best estimate of temperature for each item.

3. ice cube   hot summer day   cup of hot cocoa   cool fall day
       −2°C or 5°C   10°C or 29°C   18°C or 75°C   16°C or 36°C

_____ _____ _____ _____

CHAPTER 14   PRACTICE TEST
Metric Measurement

Find the length of each line segment to the nearest centimetre (cm).
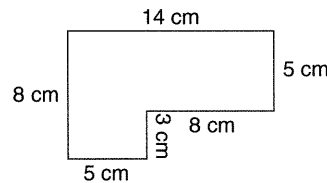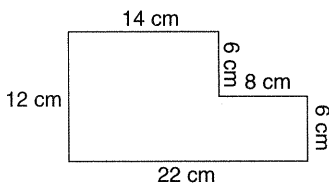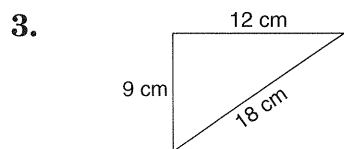Then find the length of each line segment to the nearest millimetre (mm).

a	b

1. _____ cm   _____ mm

2. _____ cm   _____ mm
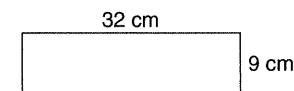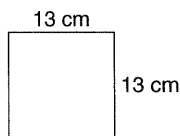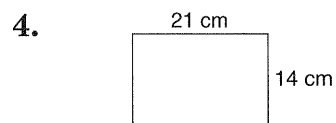
Find the perimeter of each figure.

3.

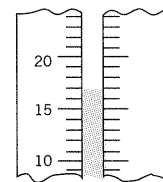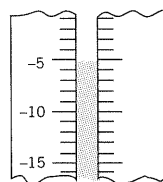_____ cm   _____ cm   _____ cm

Find the area of each rectangle.

4.

_____ cm²   _____ cm²   _____ cm²

Write each temperature in degrees Celsius.

5.
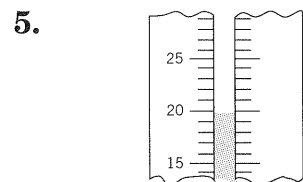
_____ °C   _____ °C   _____ °C

Complete the following.

a	b

6. 5 cm = _____ mm   3 L = _____ mL

7. 7 m = _____ cm   9 m = _____ mm

8. 1 g = _____ mg   50 cm = _____ mm

9. 5 kg = _____ g   37 L = _____ mL

CHAPTER 15   PRETEST
More Metric Measurement

1. Find the length of the line segment to the nearest centimetre.

_____ cm ▬▬▬▬▬▬▬▬▬▬▬▬

2. Find the length of the line segment to the nearest centimetre.

_____ cm ▬▬▬▬▬▬▬▬▬▬

Complete the following.

	a	*b*
3.	3 kg = _____ g	3 t = _____ kg
4.	3 min = _____ s	2 h = _____ min
5.	4 days = _____ h	6 m = _____ cm
6.	3 m = _____ cm	4 km = _____ m
7.	6 cm = _____ mm	6 cm = _____ mm
8.	8 L = _____ mL	4 L = _____ mL
9.	6 L = _____ mL	1000 mL = _____ L
10.	16 L = _____ mL	2000 mL = _____ L

Find the perimeter of each figure.

11.   *a*   *b*

3 cm   5 cm   4 cm

3 mm   3 mm   3 mm   3 mm   3 mm   3 mm

_____ cm   _____ mm