

# Measuring with Decimetres

**Goal**

Measure with decimetres and relate decimetres to centimetres and metres.

You will need a metric ruler.

**At-Home Help**

A **decimetre** is a unit of length that is between a centimetre and a metre.

$$1 \text{ dm} = 10 \text{ cm}$$

$$10 \text{ dm} = 1 \text{ m}$$

1. Many measurements begin with estimates. People often use reference lengths to help them estimate. Find something around your home that is about 1 dm long or wide or tall. Complete this statement. *Answers will vary.*

\_\_\_\_\_ A soup can \_\_\_\_\_ is about 1 dm \_\_\_\_\_ tall \_\_\_\_\_.

2. Use your object from Question 1. Is the length of each item longer or shorter than 1 dm?

- |  |  |
|--|--|
| a) a new pencil _____ longer _____       | e) a remote control _____ longer _____ |
| b) an eraser _____ shorter _____         | f) a loaf of bread _____ longer _____  |
| c) a pop can _____ longer (taller) _____ | g) a spoon _____ longer _____          |
| d) your thumb _____ shorter _____        | h) a toothpick _____ shorter _____     |

3. a) Draw a line that you think is 1 dm long using a straight edge that is not a ruler.

*Answers will vary.*

- b) Use a ruler to measure your estimated line. *Answers will vary.*  
Correct the line to make it exactly 1 dm.

- c) Was your estimate shorter or longer than the measured line?

By how much? \_\_\_\_\_ *Answers will vary.*

- d) How many centimetres long is your measured line? \_\_\_\_\_ 10 cm \_\_\_\_\_

4. Find and name 2 objects at home that would be better measured in decimetres than metres. *Answers will vary. For example, height and width of a* \_\_\_\_\_  
*computer screen, height of a glass of water, height of a book.* \_\_\_\_\_



# Record Measures Using Multiple Units

**Goal** Measure and record using a combination of units.

You will need a ruler marked in millimetres.

1. Which measurement is more precise?

a) 4 m or 3 m 97 cm 3 m 97 cm

b) 104 mm or 10 cm 104 mm

2. Complete.

a) 246 cm = 2 m 46 cm

b) 44 mm = 4 cm 4 mm

c) 165 mm = 16 cm 5 mm

d) 4 m 16 cm = 416 cm

e) 7 cm 4 mm = 74 mm

f) 17 cm 3 mm = 173 mm

3. Use a ruler to draw each line.

a) 13 cm \_\_\_\_\_

b) 8 cm 4 mm \_\_\_\_\_

c) 73 mm \_\_\_\_\_

4. Complete.

a) 31 mm = 3 cm 1 mm

b) 47 mm = 4 cm 7 mm

c) 2500 m = 2 km 500 m

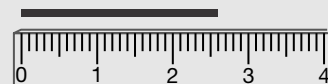
d) 45 cm = 4 dm 5 cm

## At-Home Help

Measurements sometimes include 2 units. Large units use smaller numbers and are easier to picture. Using smaller units makes the measurement more precise.

It is important to state the units when measuring. Without units, the numbers have no meaning.

This line is 26 mm or 2 cm 6 mm.



# Solve Problems by Drawing Diagrams

**Goal** Use diagrams to solve problems.

You will need a ruler.

1. Alyssa lives 28 km north of Ben.  
Kara lives 13 km south of Ben.  
How far apart do Alyssa and Kara live?

41 km

2. Ming is flying a kite. At first the kite flies 12 m above him. Then he lets out more string and the kite goes up another 3 m. The wind dies down and the kite sinks 5 m. As the wind picks up, the kite goes 7 m higher.  
How many metres above Ming is the kite now?

17 m

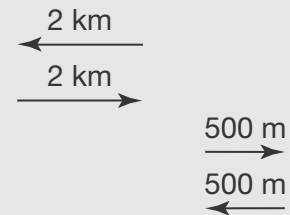
3. Ethan walked 3 blocks north, 2 blocks west, 5 blocks south, 3 blocks east, and 2 blocks north. How many blocks is Ethan from his starting point? Is he north, south, east, or west of his starting point?

1 block east

## At-Home Help

A diagram helps when solving some problems.

On a hiking trail, a sign says Lookout A is 2 km west and Lookout B is 500 m east. What is the distance from the sign to Lookout A, then to Lookout B, and back to the sign?



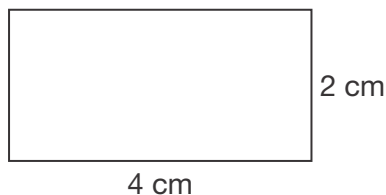
$$4 \text{ km} + 1000 \text{ m} = 4 \text{ km} + 1 \text{ km} \\ = 5 \text{ km}$$

# Perimeter of Rectangles

**Goal** Use the length and width of a rectangle to find its perimeter.

You will need a metric ruler.

1. a) Use the given length and width to find the perimeter of the rectangle.  $12\text{ cm}$



- b) Measure the distance around the rectangle to check.  $12\text{ cm}$

2. Calculate the perimeter of each rectangle.

- a) 14 cm long and 12 cm wide

$52\text{ cm}$

- b) 20 m long and 9 m wide

$58\text{ cm}$

- c) 56 cm long and 13 cm wide

$138\text{ cm}$

3. a) A rectangle is 7 cm wide and 9 cm long. What is its perimeter?

$32\text{ cm}$

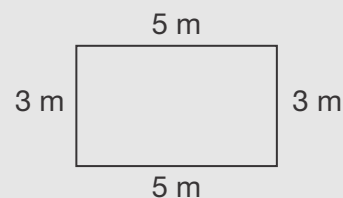
- b) What happens to the perimeter of the rectangle if the length increases by 2 cm? What is the new perimeter?

The perimeter increases by  $4\text{ cm}$  to  $36\text{ cm}$ .

## At-Home Help

The **perimeter** of a shape is the distance around the shape.

The perimeter of this rectangle is  $3\text{ m} + 5\text{ m} + 3\text{ m} + 5\text{ m} = 16\text{ m}$ .



Because opposite sides are the same length, you can add 2 adjacent sides (a length and a width) and double the sum to find the perimeter.

The perimeter of this rectangle is double  $(4\text{ m} + 6\text{ m}) = \text{double}(10\text{ m}) = 20\text{ m}$



# Decades, Centuries, and Millenniums

**Goal** Relate decades, centuries, and millenniums.

Answers will vary. All answers are given for 2004.

1. a) What year is it now? 2004
  - b) What year was it 1 decade ago? 1994
  - c) What year will it be 1 decade from now? 2014
  - d) What year was it 1 century ago? 1904
  - e) What year will it be 1 century from now? 2104
  - f) What year was it 1 millennium ago? 1004
  - g) What year will it be 1 millennium from now? 3004
2. A family has lived in the same house for 22 years.
  - a) How many complete decades is that? 2
  - b) In how many more years will it be another complete decade? 8
3. Mayfield School was built in 1920. After 1 century, it will celebrate its centennial year. What year will that be? 2020
4. Express in years.
  - a)  $\frac{1}{2}$  a century 50 years
  - b) a decade and a  $\frac{1}{2}$  15 years
  - c) 3 centuries 300 years
5. Fill in the year.
  - a) 2 decades before 2010 1990
  - b) 3 decades after 2010 2040
  - c) the midpoint of this century 2050

## At-Home Help

Large time intervals have names—decade, century, and millennium.

1 decade = 10 years

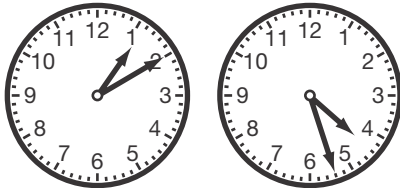
1 century = 100 years

1 millennium = 1000 years

## Time in Minutes

**Goal** Find out how long an event takes.

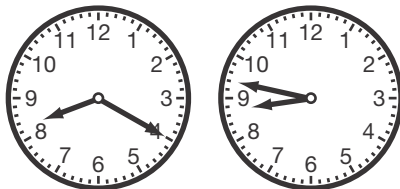
1. Lata went to her friend's house to play on a Saturday afternoon. The clocks show the time when she left and when she returned home.



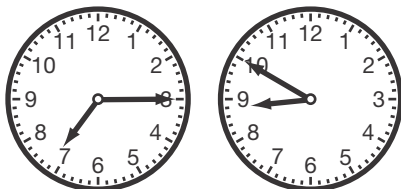
- a) What time did she leave? 1:10 p.m.
- b) What time did she return? 4:27 p.m.
- c) How long was she away? 3 hours  
17 minutes, or 197 minutes

2. How long does each event take?

- a) walking to school 27 minutes



- b) watching a movie 1 hour 35 minutes,  
or 95 minutes



3. Bill is playing soccer in his backyard with friends. They start the game at 4:05 and play for 45 minutes. Bill needs to be in the house by 5:00. Will he make it? Explain.

Yes, he will finish at 4:50, so he will have time to get from his backyard into the house.

### At-Home Help

This clock shows when Alex arrived at his grandmother's house.



This clock shows when Alex left his grandmother's house.



He was at his grandmother's for 1 hour 25 minutes, or 85 minutes.



From 1:25 to 2:25 is 1 hour, or 60 minutes.  
From 2:25 to 2:50 is 25 minutes.  
So the total time was 1 hour 25 minutes, or 85 minutes.

# Test Yourself

You will need a ruler marked in millimetres.

Circle the correct answer.

1. Which object is shorter than a decimetre?

- A. a metre stick    **B. an eraser**    C. a newspaper    D. a person

2. Use a ruler. How many millimetres are between 30 mm and 70 mm?

- E. 40 mm**    F. 4 mm    G. 400 mm    H. 37 mm

3. What does 323 cm equal?

- A. 3 m 32 cm    B. 300 m 23 cm    **C. 3 m 23 cm**    D. 32 m 3 cm

4. 2 friends walk 40 m from the parking lot to the beginning of a 3 km hiking trail. They realize that they left their water bottles in the car.

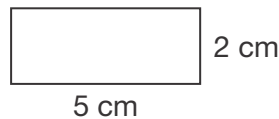
They go back to get their water bottles, then walk the trail, and return to the car. How far do they walk in total?

- E. 3 km 40 m    F. 3 km 80 m    G. 3 km 120 m    **H. 3 km 160 m**

5. What is the perimeter of this rectangle?

- A. 10 cm    C. 24 cm

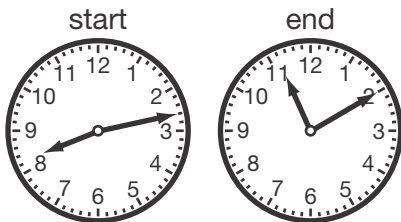
- B. 14 cm**    D. 7 cm



6. What year is 1 century after 2006?

- E. 2106**    F. 3006    G. 2016    H. 2026

7. Jesse and Dan went for a canoe ride. How long were they gone?



- A. 3 hours 3 minutes

- B. 3 hours 23 minutes

- C. 3 hours 57 minutes

- D. 2 hours 57 minutes**