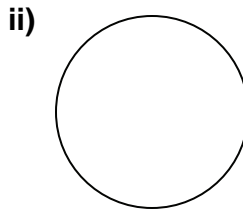
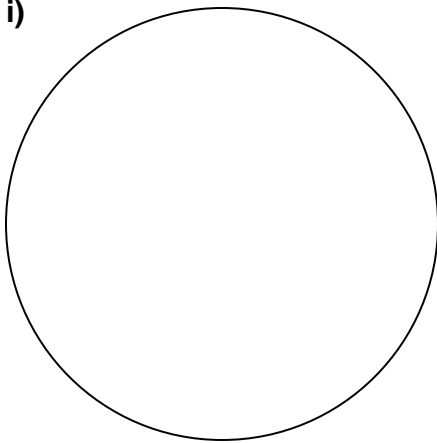


## Extra Practice 1A

### Lesson 4.1: Investigating Circles

1. Use a compass.  
Draw a circle with radius 5 cm.  
Label the radius, then find the diameter.
2. Draw a circle with radius 6 cm, without using a compass.  
Label the radius, then find the diameter.
3. For each circle below:
  - a) Mark the centre, a radius, and a diameter.
  - b) Estimate the lengths of the radius and diameter.
  - c) Measure the lengths of the radius and diameter to the nearest millimetre.  
How do your estimates compare with the measurements?



4.
  - a) A circle has radius 3.2 cm. What is its diameter?
  - b) A circle has diameter 23.8 cm. What is its radius?
5. A circular seat for a stool is to be cut from a square piece of wood of side length 60 cm. What is the radius of the largest seat that could be cut from the piece of wood?  
How do you know?
6. Suppose you are given a circular piece of paper.  
Explain how you can find its centre.

## Extra Practice 2A

### Lesson 4.2: Circumference of a Circle

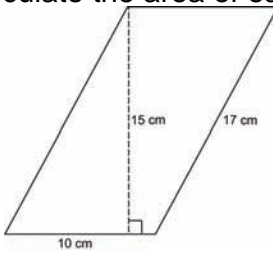
1. A circle has diameter 7.2 cm.  
Calculate the circumference of the circle.  
Give the answer to one decimal place.
2. A circle has radius 8.3 mm.  
Calculate the circumference of the circle.  
Give the answer to one decimal place.
3. A circle has circumference 82.4 cm.  
Calculate the diameter of the circle.  
Give the answer to one decimal place.
4.
  - a) Suppose you halve the diameter of a circle.  
What happens to the circumference?
  - b) Suppose you double the radius of a circle.  
What happens to the circumference?
5.
  - a) A circular tablecloth with a 1.0 m diameter is to have lace around the edge.  
How much lace is needed?
  - b) The lace edging costs \$3.27/m.  
What is the cost to edge the tablecloth?
6. A circular flowerbed has circumference 5.3 m.  
What is the diameter of the flowerbed?  
Give the answer to two decimal places.

## Extra Practice 3A

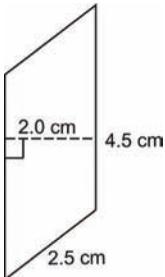
### Lesson 4.3: Area of a Parallelogram

1. Calculate the area of each parallelogram.

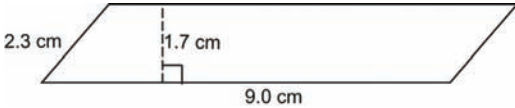
a)



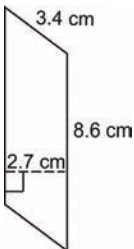
b)



c)



d)



2. The height of a parallelogram is 15 mm.

What is the base of the parallelogram for each area?

a)  $225 \text{ mm}^2$     b)  $48 \text{ mm}^2$     c)  $145.5 \text{ mm}^2$     d)  $346.5 \text{ mm}^2$

3. Draw 3 different parallelograms with base 2.4 cm and height 3.0 cm.

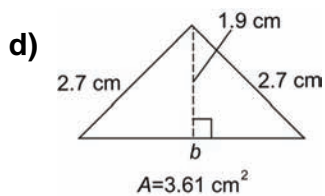
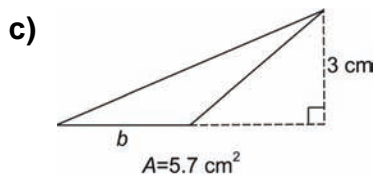
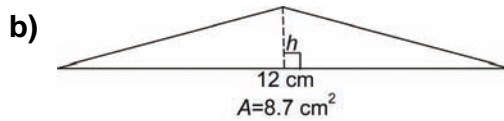
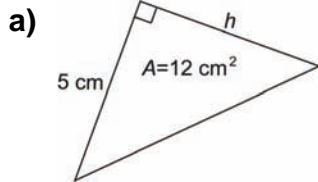
4. Use 1-cm grid paper.

Draw as many parallelograms as you can with area  $36 \text{ cm}^2$ .

## Extra Practice 4A

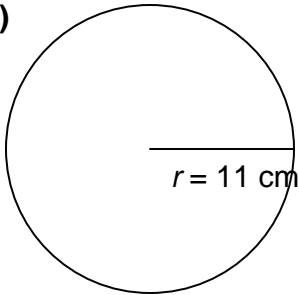
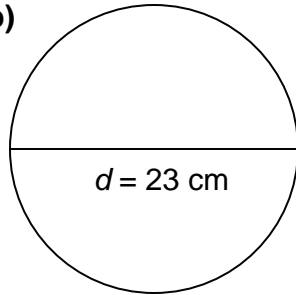
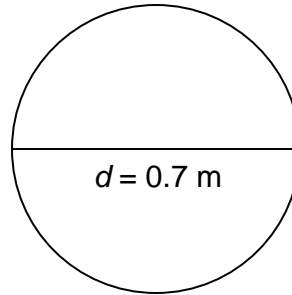
### Lesson 4.4: Area of a Triangle

- Use 1-cm grid paper.  
Draw two different triangles for each area.  
a)  $15 \text{ cm}^2$       b)  $8 \text{ cm}^2$
- Use 1-cm grid paper.  
a) Draw a triangle with area  $3 \text{ cm}^2$ .  
b) Draw another triangle with the same height but double the area of the first triangle.  
How does the base change?  
c) Draw another triangle with the same height but one-half the area of the first triangle.  
How does the base change?
- The area of each triangle is given.  
Find each unknown measure.



**Extra Practice 5A****Lesson 4.5: Area of a Circle**

1. Calculate the area of each circle.  
Give the answers to one decimal place.

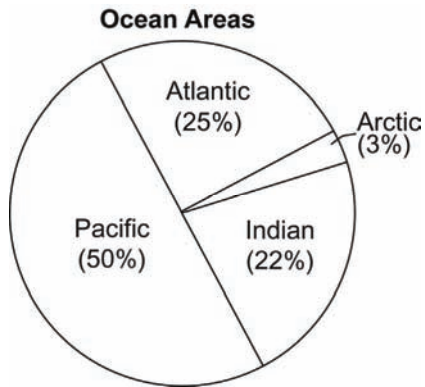
**a)****b)****c)**

2. Use the results of question 1.  
What happens to the area in each case?
- a)** The radius is doubled.
  - b)** The radius is halved.
  - c)** The diameter is halved.
3. The turning circle for the discus throw in track and field has a diameter of 2.5 m.
- a)** What is the radius of the circle?
  - b)** What is the area of the circle?  
Answer to one decimal place.
4. The diameter of a circular door handle is 7.8 cm.
- a)** What is the radius of the handle?
  - b)** What is the circumference of the handle?
  - c)** What is the area of the handle?
5. A circular pie has a crust with diameter 13.2 cm.
- a)** What is the area of the crust?
  - b)** What is the circumference of the crust?
6. An inspection hatch cover is circular with diameter 68 cm.  
What is the area of the cover?

## Extra Practice 6A

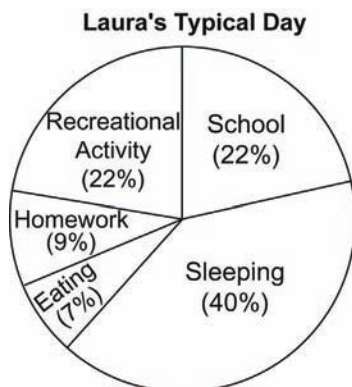
### Lesson 4.6: Interpreting Circle Graphs

1. The circle graph shows the area of the oceans.



The four oceans have an approximate area of 315 million km<sup>2</sup>.  
Find the approximate area of each ocean.

2. This graph shows Laura's typical day.



- Which activity does Laura spend most time doing?
- Which two activities does Laura do for about the same amount of time?
- About how many hours does Laura spend on each activity each day?

**Extra Practice 7A****Lesson 4.7: Drawing Circle Graphs**

1. A college professor reported these final grades for his students:

Grade	A	B	C	D	F
Number of Students	4	10	37	8	1

Display the data on a circle graph.

2. These data show the ages of viewers of a certain TV show:

Age	0–12	13–19	20–29	30–39	40–49	50+
Percent	5	45	25	10	5	10

- a) Draw a circle graph to illustrate the data.  
 b) One day, 250 000 people saw the show.  
 How many viewers were in each group?
3. Which data sets could be represented by a circle graph?  
 Explain.
- a) These data show the composition of the Earth's atmosphere.

Gas	Nitrogen	Oxygen	Argon	Other
Percent	78	21	0.9	0.1

- b) These data show the rainfall in centimetres at Latimer School.

Month	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
Rainfall	5	15	30	26	11	10	18	23	15

- c) These data show the favourite chip flavours of grade 7 and 8 students.

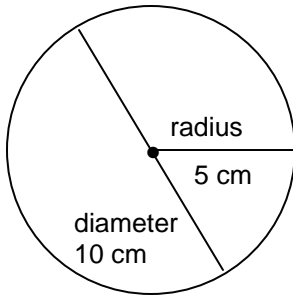
Flavour	Plain	All Dressed	Dill	Cheese
Number of Grade 7 Students	6	13	1	8
Number of Grade 8 Students	14	7	3	6

## Extra Practice Sample Answers

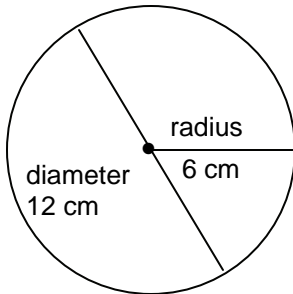
### Extra Practice 1A

#### Lesson 4.1

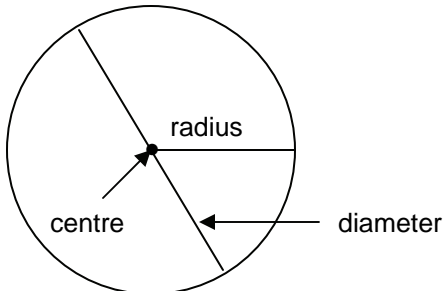
1. The diameter of the circle is 10 cm; 5 cm



2. The diameter of the circle is 12 cm.



3. a) For example:



- b) i) About 6 cm and 3 cm ii) About 2 cm and 1 cm  
 c) i) About 5.8 cm and 2.9 cm ii) About 2.6 cm and 1.3 cm
4. a) 6.4 cm      b) 11.9 cm
5. 30 cm
6. Fold the circle in half along any two different lines. The point at which the two folds cross is the centre of the circle.

### Extra Practice 2A

#### Lesson 4.2

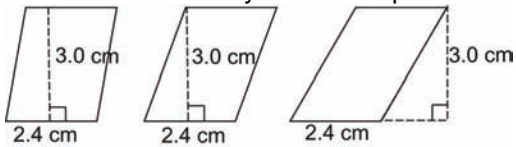
1. 22.6 cm  
 2. 52.2 mm  
 3. 26.2 cm  
 4. a) The circumference is halved.  
    b) The circumference is doubled.  
 5. a) 3.14 m      b) \$10.27  
 6. 1.69 m



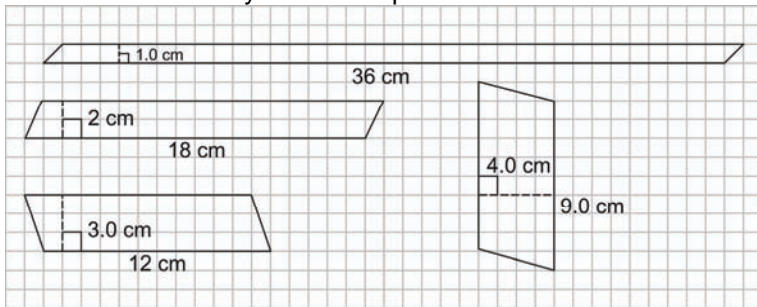
### Extra Practice 3A

#### Lesson 4.3

1. a)  $A = 10 \times 15 = 150 \text{ cm}^2$       b)  $A = 4.5 \times 2 = 9 \text{ cm}^2$   
 c)  $A = 9 \times 1.7 = 15.3 \text{ cm}^2$       d)  $A = 8.6 \times 2.7 = 23.2 \text{ cm}^2$
2. a) 15 mm      b) 3.2 mm      c) 9.7 mm      d) 23.1 mm
3. Answers will vary. For example:



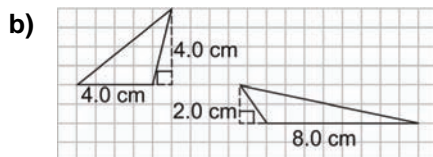
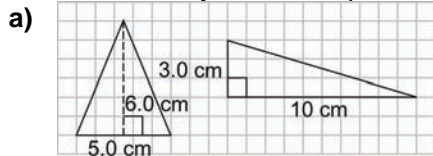
4. Answers will vary. For example:



### Extra Practice 4A

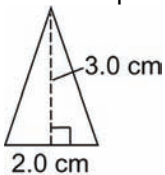
#### Lesson 4.4

1. Answers will vary. For example:

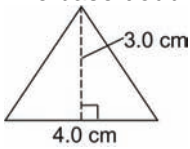


2. Drawings will vary.

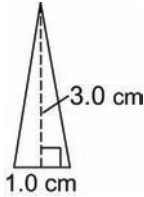
- a) For example:



- b) The base doubles. For example:



- c) The base is halved. For example:



3. a)  $h = 4.8$  cm    b)  $h = 1.45$  cm  
 c)  $b = 3.8$  cm    d)  $b = 3.8$  cm

## Extra Practice 5A

### Lesson 4.5

- a)  $380.1 \text{ cm}^2$     b)  $415.5 \text{ cm}^2$     c)  $0.4 \text{ m}^2$
- a) The area is 4 times as great.  
 b) The area is one-fourth as great.  
 c) The area is one-fourth as great.
- a)  $1.3 \text{ m}$     b)  $4.9 \text{ m}^2$
- a)  $3.9 \text{ cm}$     b)  $24.5 \text{ cm}$     c)  $47.8 \text{ cm}^2$
- a)  $136.8 \text{ cm}^2$     b)  $41.5 \text{ cm}$
- $3631.7 \text{ cm}^2$

## Extra Practice 6A

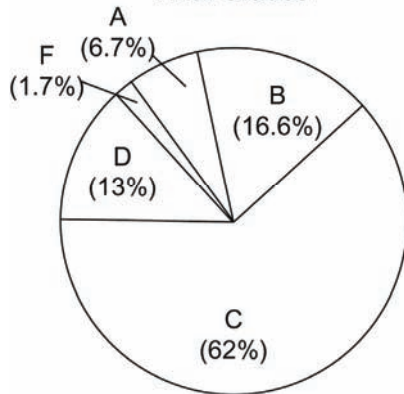
### Lesson 4.6

- Pacific Ocean: 157.5 million  $\text{km}^2$   
 Atlantic Ocean: 78.75 million  $\text{km}^2$   
 Indian Ocean: 69.3 million  $\text{km}^2$   
 Arctic Ocean: 9.45 million  $\text{km}^2$
- a) Sleeping  
 b) Recreational activities and attending school  
 c) Sleeping: 9.6 h  
 Attending School: 5.3 h  
 Recreational Activities: 5.3 h  
 Homework: 2.2 h  
 Eating: 1.7 h

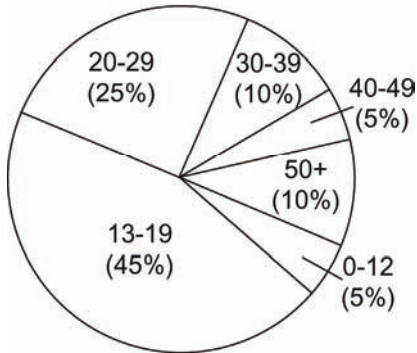
## Extra Practice 7A

### Lesson 4.7

1. **Final Grades**



2. a) **TV Viewers**



- b) 0-12: 12 500 viewers  
 13-19: 112 500 viewers  
 20-29: 62 500 viewers  
 30-39: 25 000 viewers  
 40-49: 12 500 viewers  
 50+: 25 000 viewers

3. a) A circle graph best represents these data because it shows parts of one whole.  
 b) A circle graph best represents these data because it shows parts of one whole.  
 c) These data cannot be represented by a circle graph because the data do not represent parts of one whole.