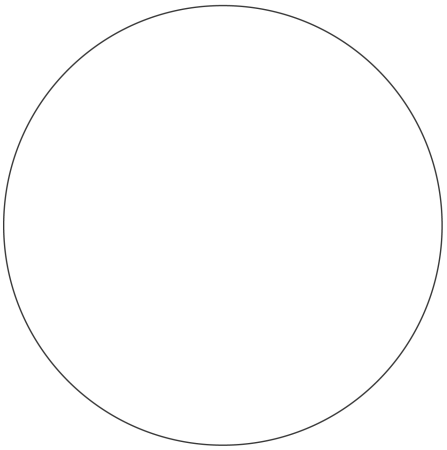
Name _____ Date _____

Master 4.24

Extra Practice 1

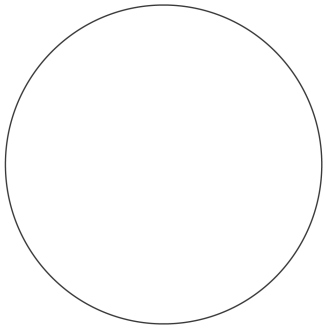
Lesson 4.1: Investigating Circles

1. **a)** Mark the centre, a radius, and a diameter of the circle below.
b) Measure the circumference of the circle.
Explain how you found your answer.
c) Measure the radius and diameter of the circle.

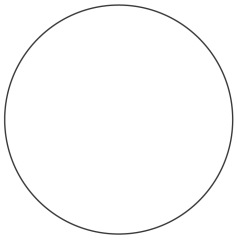


2. On each circle:
a) Mark the centre, a radius, and a diameter.
b) Estimate the lengths of the radius and diameter.
c) Measure the lengths of the radius and diameter to the nearest millimetre.
How do your estimates compare with the measurements?

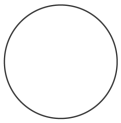
i)



ii)



iii)



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Extra Practice 2

Lesson 4.2: Circumference of a Circle

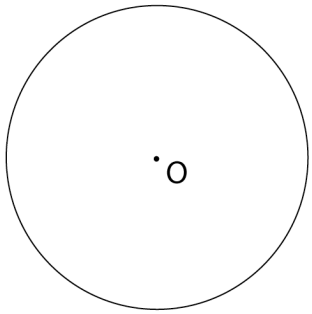
1. A circle has diameter 10.5 cm.
Calculate the circumference of the circle to the nearest millimetre.

2. A circle has radius 4.3 mm.
Calculate the circumference of the circle to the nearest millimetre.

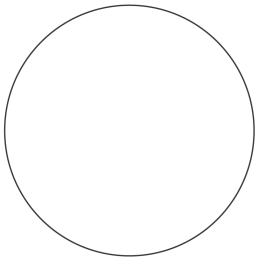
3. A circle has circumference 12.6 m.
Calculate the diameter of the circle to the nearest centimetre.

4. Describe two different ways to find the circumference of a circle with radius 5 cm.

5. What is the circumference of the circle below? O is the centre of the circle.



6. What is the radius of the circle below?



7. A circular tablecloth has diameter 1 m.
The designer wants to put a fringe around the edge of the cloth.
How much fringe should he buy, if fringe is sold by the tenth of a metre?
Explain.

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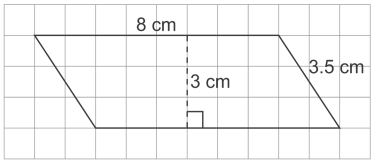
Extra Practice 3

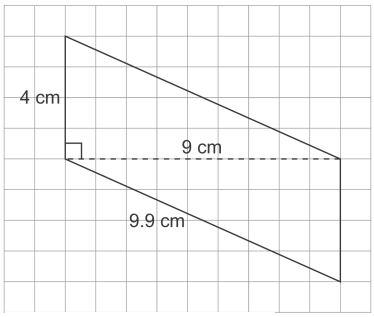
Lesson 4.3: Area of a Parallelogram

1. Calculate the area of each parallelogram.

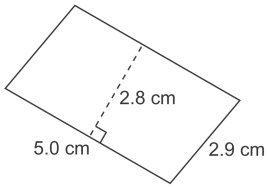
a)



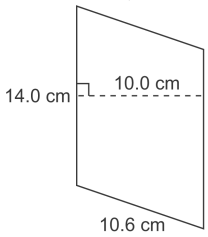
b)



c)



d)



2. The base of a parallelogram is 25 m. What is the height of the parallelogram for each area?

a) 100 m² **b)** 375 m² **c)** 225 m² **d)** 12.5 m²

3. Draw 3 different parallelograms with base 6.5 cm and height 4.0 cm.

4. On 1-cm grid paper, draw as many different parallelograms as you can with area 24 cm².

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Extra Practice 4

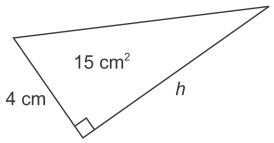
Lesson 4.4: Area of a Triangle

1. On 1-cm grid paper, draw two different triangles for each area:
a) 6 cm² **b)** 12 cm²

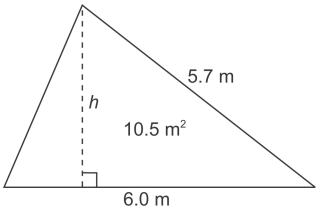
2. Use 1-cm grid paper.
a) Draw a triangle with area 8 cm².
b) Draw another triangle with the same base but double the area of the first triangle. How does the height change?
c) Draw another triangle with the same base but one-half the area of the first triangle. How does the height change?

3. The area of each triangle is given. Find each unknown measure.

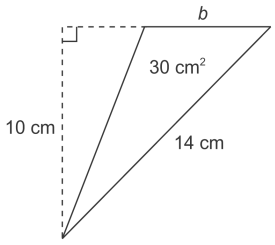
a)



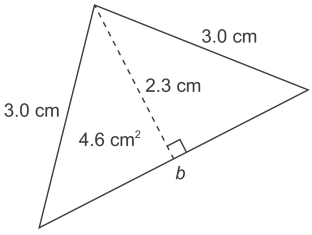
b)



c)



d)



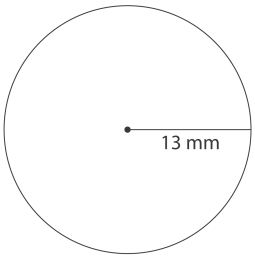
Name _____ Date _____

Extra Practice 5

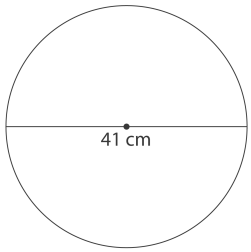
Lesson 4.5: Area of a Circle

1. Calculate the area of each circle.
Give the answers to one decimal place.
Estimate to check your answers are reasonable.

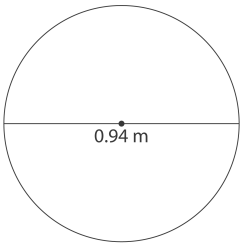
a)



b)



c)



2. A carpenter is making a circular tabletop with radius 0.5 m.
What is the area of the tabletop to the nearest tenth of a metre?

3. The diameter of a knob on a CD player is 0.78 cm.
a) What is the radius of the knob?
b) What is the circumference of the knob?
c) What is the area of the knob?

4. A quilter is making a circular tree skirt to go under a decorative tree.
The radius of the tree skirt is 1.75 m.
a) What is the area of the tree skirt?
b) Suppose the quilter doubles the radius of the tree skirt.
What happens to the area?
What is the new area?
c) Suppose the quilter triples the radius of the tree skirt.
How can you find the new area without using the area formula?
What is the new area?

5. The circular vent on a furnace has diameter 19.4 cm.
What is the area of the vent?

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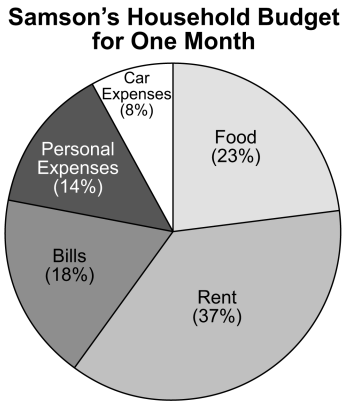
Extra Practice 6

Lesson 4.6: Interpreting Circle Graphs

1. The circle graph shows Samson's household budget for a month.



a) Samson takes home $2500 per month. How much does he budget for each item?

b) Samson gets a raise of $500 per month. How will this affect his food budget?

2. This circle graph shows how much time is spent in one day watching different types of TV programs.

a) Which type of program is watched for the greatest amount of time?

b) Which two types of programs are watched for approximately the same amount of time?

c) Estimate the fraction of time spent watching sitcoms.

d) Suppose TV is watched for 1000 days.

Estimate how much time is spent watching sitcoms.

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Extra Practice 7

Lesson 4.7: Drawing Circle Graphs

1. The human body is made up of 20% fat, 18% bone, 50% muscle, and 12% other.
- **a)** Anica's mass is 69 kg. Determine the mass of each part of Anica's body.
  i) fat **ii)** bone **iii)** muscle **iv)** other
- **b)** Display the data on a circle graph.
- **c)** What is easily seen on the graph that is not obvious from the data? Explain.

2. To help reduce the cost of the Grade 7 camp weekend, the following amount of money was donated by each group: parents $525, teachers $230, local businesses $340. Students also held a cake auction, which raised $720.
- **a)** How much money was collected?
- **b)** What fraction of the donations was given by local businesses?
- **c)** What percent of the money was raised at the cake auction?
- **d)** Display the data on a circle graph.

3. **a)** Which data set could be represented by a circle graph? Explain.
b) Which data sets could not be represented by a circle graph? Explain.

i) **Colours of Cars in the Mall Parking Lot**

Colour	Silver	Blue	Black	Green	Beige	Red	Other
Number	15	8	13	5	11	2	4

ii) **Daily Average High and Low Temperatures for a City**

Month	**Jan.**	**Feb.**	**Mar.**	**Apr.**	**May**	**June**
High Temperature (°C)	–7	–4	5	9	14	20
Low Temperature (°C)	–12	–8	2	4	11	15

iii)

Favourite Animal	**Number of Grade 1 Students**	**Number of Grade 7 Students**
Koala Bear	8	15
Horse	9	4
Kangaroo	11	10
Zebra	4	3
Giraffe	5	9
Monkey	9	12
Rabbit	14	7

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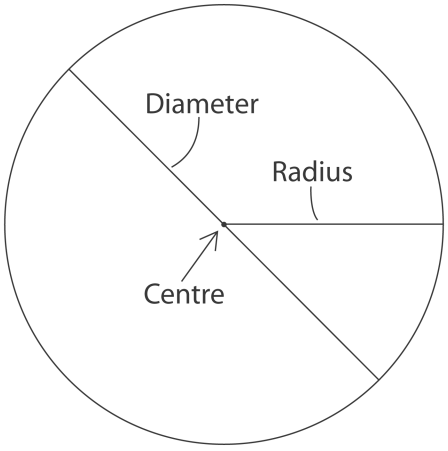
Extra Practice Sample Answers

Extra Practice 1 – Master 4.24

Lesson 4.1

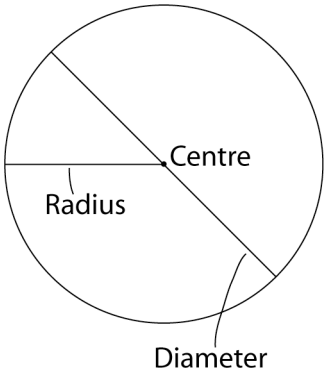
1.a)



b) The circumference is about 18 cm. I placed a string around the circle, then measured the length of the string.

c) $r \doteq 2.9$ cm; $d \doteq 5.8$ cm

2. a) For example:



b) About 4 cm and 2 cm; about 3 cm and 1.5 cm; about 2 cm and 1 cm

c) About 4.2 cm and 2.1 cm; about 3.1 cm and 1.5 cm; about 1.5 cm and 0.8 cm

Extra Practice 2 – Master 4.25

Lesson 4.2

1. About 33 cm

2. About 27 mm

3. About 4.01 m

4. Use $C = 2\pi r$ or find d, then use $C = \pi d$.

$C \doteq 31.42$ cm

5. About 12.6 cm

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6. About 1.65 cm

7. 3.2 m; he must round up; if he rounds down, he will not have enough fringe.

Extra Practice 3 – Master 4.26

Lesson 4.3

1. a) $A = 24 \text{ cm}^2$

b) $A = 36 \text{ cm}^2$

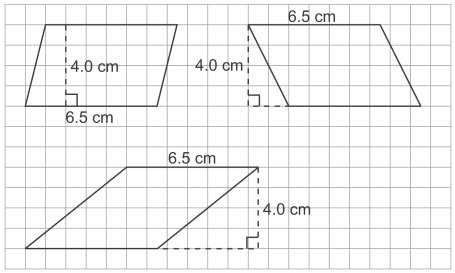
c) $A = 14.0 \text{ cm}^2$

d) $A = 140 \text{ cm}^2$

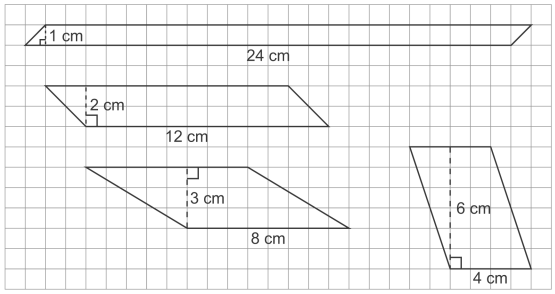
2. a) $h = 4$ m **b)** $h = 15$ m

c) $h = 9$ m **d)** $h = 0.5$ m

3.



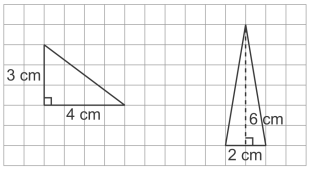
4. For example,



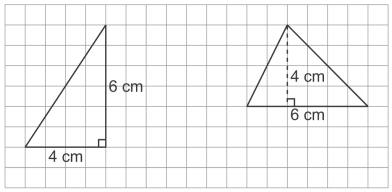
Extra Practice 4 – Master 4.27

Lesson 4.4

1. a)



b)



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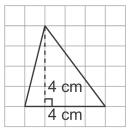
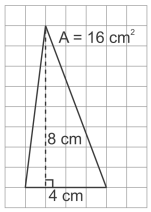
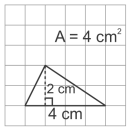
2. a) 

b) 

The height doubles.

c)



The height is halved.

3. **a)** h = 7.5 cm **b)** h = 3.5 m
c) b = 6 cm **d)** b = 4 cm

Extra Practice 5 – Master 4.28

Lesson 4.5

1.a) 530.9 mm^2
b) 1320.3 cm^2
c) 0.7 m^2

2. 0.8 m^2

3.a) 0.39 cm **b)** About 2.45 cm
c) About 0.48 cm^2

4.a) About 9.62 m^2
b) The area quadruples; about 38.48 m^2
c) When the radius triples, the area increases 9 times; multiply the original area by 9: about 86.58 m^2

5. About 295.6 cm^2

Extra Practice 6 – Master 4.29

Lesson 4.6

2.a) Food: $575; Rent: $925; Bills: $450;
Personal Expenses: $350; Car Expenses: $200

b) His food budget would increase by $115 to $690 per month.

2.a) News **b)** Movies and Cartoons
c) About **d)** About 250 days

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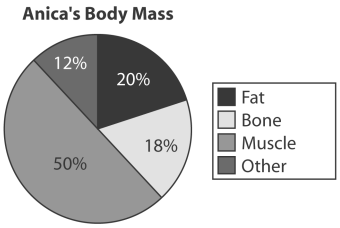
Extra Practice 7 – Master 4.30

Lesson 4.7

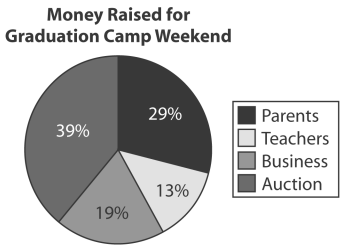
1.a)i) 13.8 kg **ii)** 12.42 kg
iii) 34.5 kg **iv)** 8.28 kg
b)



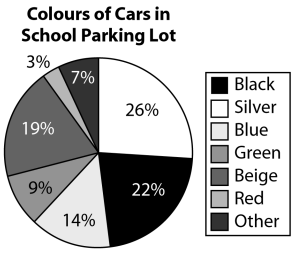
c) Half of Anica's body mass is muscle. The majority of body mass is made up of muscle. The visual representation makes this very obvious.

2.a) $1815 **b)** = **c)** About 39.7%

d)



3.a) i) A circle graph best represents these data because it shows parts of one whole.



b) ii) This data set cannot be represented by a circle graph. The data do not represent parts of one whole.
iii) This data set cannot be represented by a circle graph because the data do not represent parts of one whole.