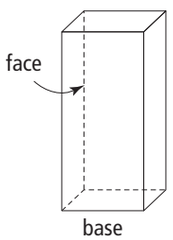
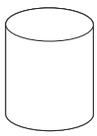
Get Ready

Name: _____ **Date:** _____

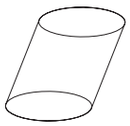
Identifying Right Cylinders and Right Prisms

Right prisms and right cylinders have lateral faces that meet the base at 90°.



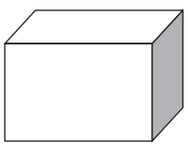


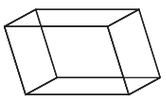
This is a right cylinder.

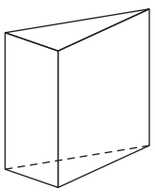


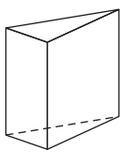
This is not a right cylinder.

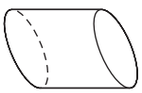
1. Identify the right prisms and right cylinders. Explain how you know.

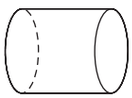
a) 

b) 

c) 

d) 

e) 

f) 

Use Mental Math

Mental mathematics includes estimating answers mentally.

When you are asked to estimate, give an approximate but carefully thought-out answer.

To estimate 58×3.7, use numbers that are easy to work with.

$50 \times 3 = 150$ Use front-end estimation.

$60 \times 4 = 240$ Use relative size estimation.

$60 \times 3 = 180$ Round one up and the other down.

The answer to 58×3.7 is between 150 and 240.

2. Estimate each answer. Show your thinking.

a) 7.6×24

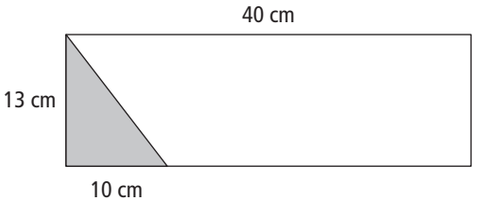
b) 96×8.1

c) 2.9×68

Name: _____ Date: _____

Calculating Area

Area measures the region inside a two-dimensional space.
This rectangle has a shaded triangle.
What is the area of the remaining part of the rectangle?



Area of rectangle $= l \times w$

$A = 40 \times 13$

$A = 520$

The area of the rectangle is 520 cm^2.

Area of triangle $= (b \times h) \div 2$

$A = (10 \times 13) \div 2$

$A = 130 \div 2$

$A = 65$

The area of the triangle is 65 cm^2.

Area of unshaded region = Area of rectangle – Area of triangle

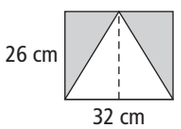
$A = 520 - 65$

$A = 455$

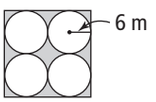
The area of the unshaded region is 455 cm^2.

3. Calculate the area of each shaded region. Round your answers to the nearest tenth.

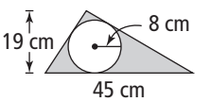
a)



b)



c)



Repeated Multiplication

6^2 can be written as 6×6.

$6^2 = 6 \times 6$

$= 36$

6^2 is read as "6 squared" or "6 to the power of 2"

2^3 can be written as $2 \times 2 \times 2$.

$2^3 = 2 \times 2 \times 2$

$= 8$

2^3 is read as "2 cubed" or "2 to the power of 3"

4. Write as repeated multiplication, then calculate each answer.

a) 4^3 **b)** 3^5

5. Is 3^4 the same as 4^3? Justify your response.

Name: _____ **Date:** _____

7.1 Understanding Volume

***MathLinks 8*, pages 246–253**

Key Ideas Review

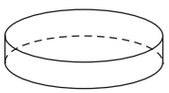
Choose from the following terms to complete #1.

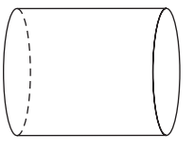
base cylinder does does not height prism

1. a) Volume of a right _____ or right _____ is found by multiplying the area of the _____ and the _____.

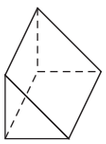
b) If you change the orientation, it _____ affect the volume.

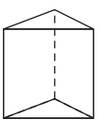
2. a) Shade the base of each right cylinder.





b) Shade the base of each right triangular prism.

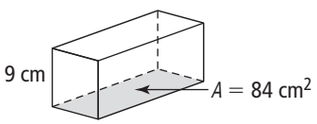




Practise and Apply

3. Use the figure measurements to calculate the volume.

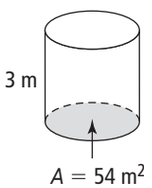
a)



$V =$ _____ × _____

$V =$ _____

b)



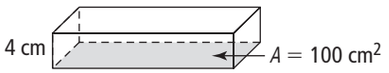
$V =$ _____ × _____

$V =$ _____

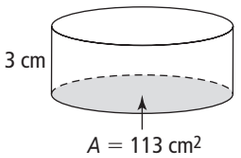
Name: _____ **Date:** _____

4. Calculate the volume of each prism or cylinder.

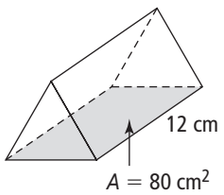
a)



b)



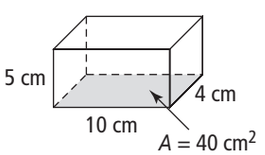
c)

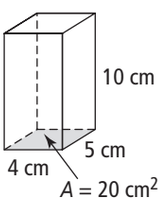


5. What is the volume of a right prism that has a base with an area of 15 cm^2 and a height of 7 cm?

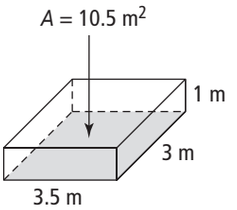
6. Which rectangular prism has the larger volume? Show your thinking.

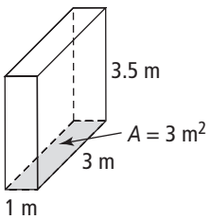
a)





b)





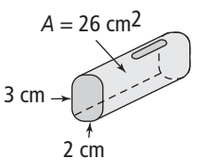
7. Calculate the height of each rectangular prism.

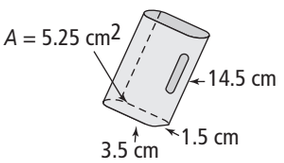
a) volume = 63 cm^3
area of base = 9 cm^2

b) volume = 26 m^3
area of base = 4 m^2

8. Nikki and Taylor have to fill the pool this summer. The area of the pool bottom is 27 m^2. The height that the water needs to be is 0.9 m. How much water do they need to put in the pool?

9. Chad wants to cut back on the amount of treats he is eating. He has two chocolate bars to choose from. Which one has less chocolate? Show your thinking.





Name: _____ **Date:** _____

7.2 Volume of a Prism

***MathLinks 8*, pages 254–261**

Key Ideas Review

Draw a line to connect each object from column B with the correct formula in column A.

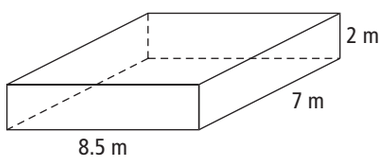
A	B
1. $V = l \times w \times h$	**a)** Cube
2. $V = (b \times h \div 2) \times h$	**b)** Right rectangular prism
3. $V = s \times s \times s$	**c)** Right triangular prism

Practise and Apply

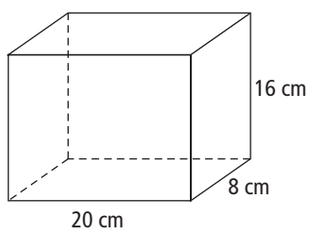
4. Calculate the volume of each rectangular prism.

a) $l = 15$ cm, $w = 12$ cm, $h = 3$ cm

b)

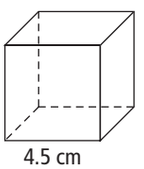


c)



5. Calculate the volume of each cube.

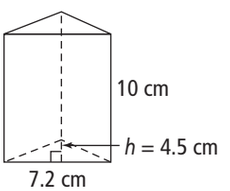
a) Express your answer to the nearest tenth.



b) $s = 7$ cm

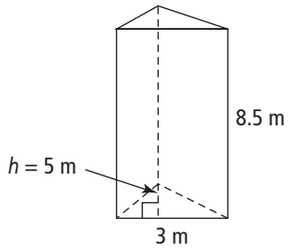
6. Calculate the volume of each right triangular prism. Express your answer to the nearest tenth.

a)



Name: _____ **Date:** _____

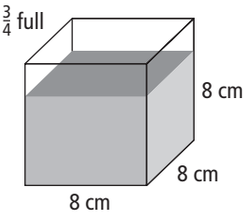
b)



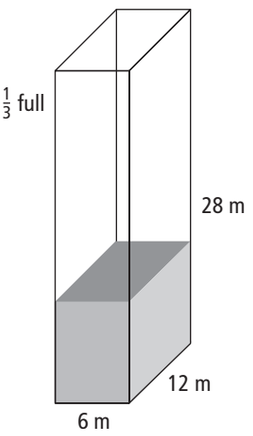
c) A prism where the base of the triangle is 4 m, the height of the triangle is 5 m, and the prism height is 12 m.

7. Calculate the volume of the contents of each container.

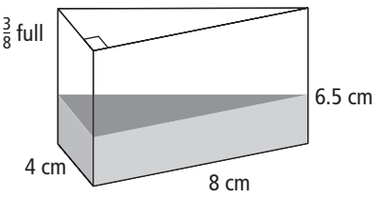
a)



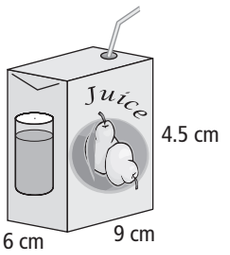
b)

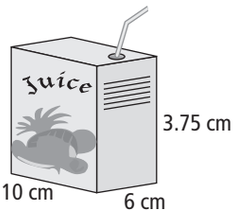


c)

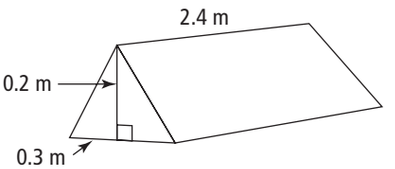


8. Wab needs to buy drinks for the summer barbeque. Both containers are the same price. Which one holds more? Show your thinking.





9. A contractor is buying cement for 100 triangular parking barriers. How much concrete does she need?



Name: _____ **Date:** _____

7.3 Volume of a Cylinder

***MathLinks 8*, pages 262–267**

Key Ideas Review

Choose from the following terms to complete #1 to #3.

area	circle	cylinder	volume

1. The shape of the base of a cylinder is a _____.

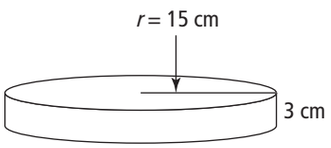
2. The formula for the _____ of a _____ is $A = \pi \times r^2$.

3. The formula for the _____ of a _____ is $V =$ _____ of the base $\times$ height.

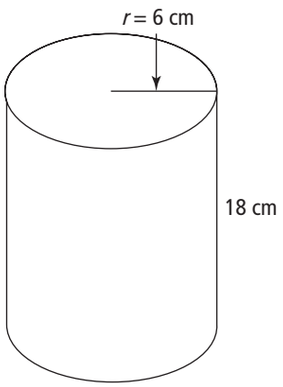
Practise and Apply

4. Determine the volume of each cylinder. Express your answer to the nearest hundredth.

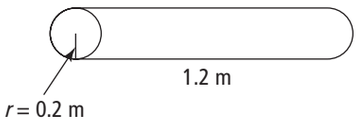
a)



b)



c)



5. Calculate the volume of each cylinder. Express your answer to the nearest hundredth.

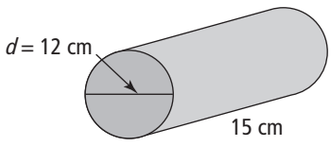
a) radius = 7 cm, height = 10 cm

b) height = 3.2 m, radius = 1.2 m

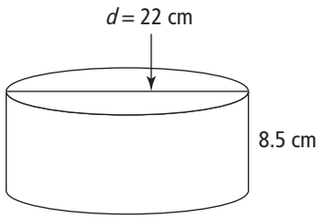
Name: _____ **Date:** _____

6. Determine the volume of each cylinder.

a)



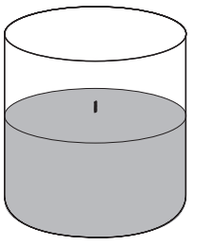
b)



c) diameter = 4 m
height = 9 m

d) height = 32.5 cm
diameter = 14 cm

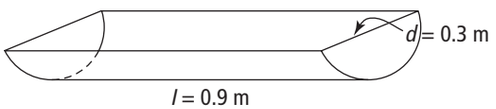
7. Jade makes candles for the school craft sale. The candle mould she uses has a radius of 5 cm and a height of 6 cm.



a) How much wax does she need to fill the mould each time?

b) If she uses 628 cm^3 of wax, how tall must the new candle mould be if the radius is 5 cm? Show your thinking.

8. How much soil will you need to fill the semi-circular planter? Express your answer to the closest thousandth.



Name: _____ **Date:** _____

7.4 Solving Problems Involving Prisms and Cylinders

***MathLinks 8*, pages 268–275**

Key Ideas Review

Unscramble the words to complete the sentences below.

1. a) There are many types of problems involving volumes of _____ and _____.
SIPSMR SENYLCDRI

b) You may need to decide which _____ to use.
LUAFROM

c) It may help to draw a _____.
RMAAGID

2. You may have to do more than one set of _____.
SONUATCLACLI

Practise and Apply

3. Patrick is packing his CDs because his family is moving. He has a box measuring 22 cm × 13 cm × 14 cm. Each CD measures 14 cm × 12.5 cm × 1 cm.

a) Draw a sketch to show the best way for Patrick to pack the CDs.

b) How many CDs will fit in the box? Show your thinking.

4. Kenu has a thermos of hot chocolate, which has a diameter of 10 cm and is 22 cm tall to the rim, not including the lid. The insulation is 1.5 cm thick.

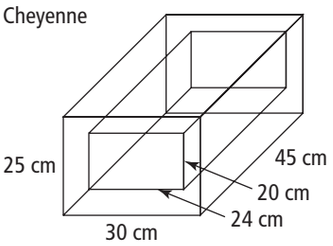
a) How much space is available for his hot chocolate? Express your answer to the closest hundredth.

b) How much material is used for the insulation? Express your answer to the closest hundredth.

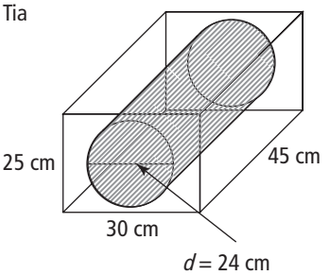
Name: _____ **Date:** _____

5. Cheyenne, Alisha, and Tia entered the ice sculpture contest at the winter carnival. This year contestants are given a block of ice to sculpt that measures 45 cm × 30 cm × 25 cm. Who has the least amount of ice shavings after sculpting objects from the block? Show your thinking.

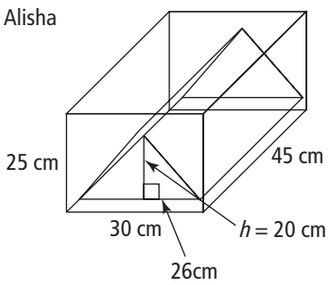
Cheyenne



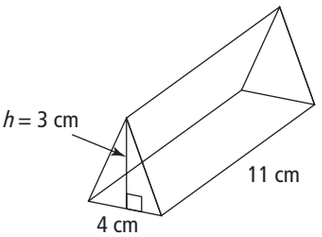
Tia



Alisha



6. Steve is counting bead containers for inventory. Below is the bead container.



There are boxes filled with bead containers. Each box measures 20 cm × 11 cm × 12 cm.

a) Draw and label how you will pack the containers into each box.

b) What is the maximum number of bead containers each box will hold?

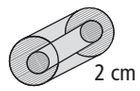
c) If there are three boxes, how many bead containers will Steve have to count?

Name: _____ **Date:** _____

Link It Together

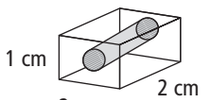
1. Campers at Knotty Pines Day Camp will make All About Me bracelets to represent things about themselves. Each bracelet will have a number of beads from the four categories shown below.

Favourites



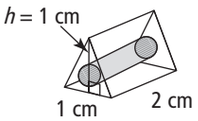
$d = 1$ cm

Characteristics



Hobbies

Goals



a) Create a design using a variety of the beads.

b) The beads are sold based on volume.
- Use the measurements in the diagram.
- The hole for the string has a diameter of 0.2 cm.

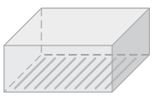
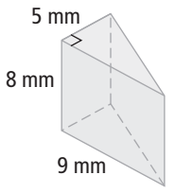
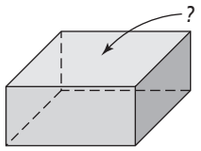
Calculate the volume of each bead. Express your answers to the nearest hundredth.

c) What is the total volume of beads in your bracelet?

Name: _____ **Date:** _____

Vocabulary Link

Draw a line from the example or description in column A to the correct term in column B, then find each term in the word search.

A	B
1. the different position of an object formed by translating, rotating, or reflecting the object	**a)** area
2. What figure does this visual show? 	**b)** base of a prism
3. measured in square units	**c)** height
4. measured in cubic units	**d)** orientation
5. In this visual, 8 mm represents the 	**e)** right cylinder
6. 	**f)** right prism
7. In this visual, the arrow points to the 	**g)** volume

H	K	H	J	X	R	M	O	E	Z	O	P	J	H	Y	Y	T	D	E	A
B	K	J	R	A	I	Q	H	I	O	K	I	K	T	A	G	N	U	B	A
N	M	F	V	H	G	B	U	Z	R	N	U	T	N	F	K	W	U	I	F
N	C	H	L	B	H	O	Q	H	I	E	J	V	Z	X	L	O	S	X	H
D	B	Z	I	A	T	E	M	S	E	V	D	V	G	V	K	A	T	N	L
I	D	Q	T	S	P	R	T	Q	N	G	B	G	J	L	F	G	U	Y	N
X	T	X	H	E	R	I	G	H	T	C	Y	L	I	N	D	E	R	C	P
B	M	A	E	O	I	D	F	F	A	W	P	B	F	F	A	J	P	E	R
G	T	X	A	F	S	C	A	E	T	Q	P	H	S	G	E	N	V	A	A
U	A	B	U	A	M	Y	A	L	I	D	L	E	K	J	S	H	N	R	J
Y	J	M	T	P	V	S	T	C	O	V	V	I	J	Y	R	O	S	B	Z
Z	Z	Z	B	R	Y	A	N	D	N	I	L	G	H	T	W	K	R	Y	R
C	J	E	A	I	Z	B	L	M	F	B	V	H	Q	V	R	D	C	Z	E
Q	P	G	C	S	E	C	T	R	M	P	O	T	R	V	D	T	N	L	G
W	A	W	M	M	X	L	W	D	Z	W	L	U	K	I	A	R	E	A	G
X	J	V	Z	K	Q	Q	J	D	D	W	U	W	B	T	Y	J	O	M	Z
E	Q	U	N	A	X	A	X	M	Y	Q	M	J	K	I	V	B	R	Z	F
O	D	P	P	K	G	V	I	V	U	O	E	T	H	B	J	E	F	Z	R