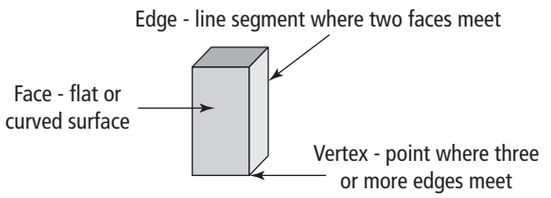
Get Ready

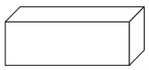
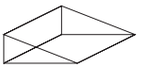
Name: _____ **Date:** _____

Three-Dimensional Objects

You can describe a three-dimensional (3-D) object by its **faces**, **edges**, and **vertices**.



1. Identify the name and the number of edges, faces, and vertices for each object.

Object	Name	Faces	Edges	Vertices
a) 				
b) 				
c) 				

Circles

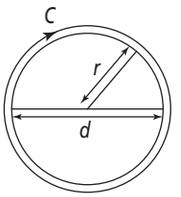
A **circle** is a set of points equal distance away from a fixed point, called the centre.

The **radius** is the distance from the centre of a circle to the outside edge. The letter *r* is often used to represent the radius.

The **diameter** is the distance across a circle through its centre. The letter *d* is often used to represent the diameter.

The diameter is two times the radius: $d = 2r$. The radius is half the diameter: $r = d\pi^2$.

The distance around a circle is called the **circumference**. The letter *C* is often used to represent the circumference.



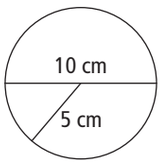
Name: _____ Date: _____

To find the circumference of a circle, use the formula $C = \pi \times d$ or $C = 2 \times \pi \times r$. Use 3.14 as an approximate value for π.

$C = \pi \times d$
$C \approx 2 \times 3.14 \times 5$
$C \approx 3.14$

$C = 2 \times \pi \times r$
$C \approx 3.14 \times 10$
$C \approx 3.14$

The circumference is 3.14



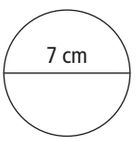
$C = \pi \times d$
$C \approx 3 \times 10$
$C \approx 30$

ME

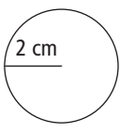
The area, A, of a circle is the space the circle encloses.
To find the area of a circle, use the formula $A = \pi \times r^2$ or $A = \pi r^2$.
$A = \pi \times r^2$
$A \approx 3.14 \times 5 \times 5$
$A \approx 78.5$ The area is 78.5 cm².

r^2 means $r \times r$.

2. a) Find the circumference of the circle to the nearest tenth of a centimetre.



b) Find the area of the circle to the nearest tenth of a centimetre squared.

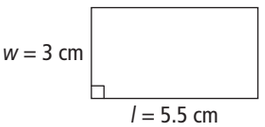


Area Formulas

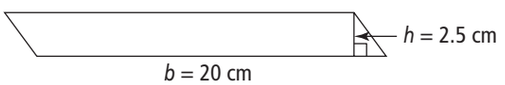
The **area** is the number of square units needed to cover a surface.

3. Use the formulas to calculate the area of these shapes to the nearest tenth of a centimetre squared.

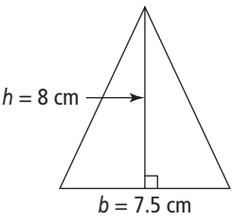
a) Rectangle: $A = l \times w$



b) Parallelogram: $A = b \times h$



c) Triangle: $A = b \times h \div 2$



Name: _____ **Date:** _____

5.1 Views of Three-Dimensional Objects

***MathLinks 8*, pages 164–169**

Key Ideas Review

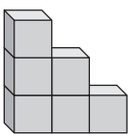
Choose from the following terms to complete #1

build	draw	front	three	3-D	top	side

1. a) A minimum of _____ views are needed to describe _____ objects.

b) Using the _____, _____, and _____ views, you can _____ or _____ a _____ object.

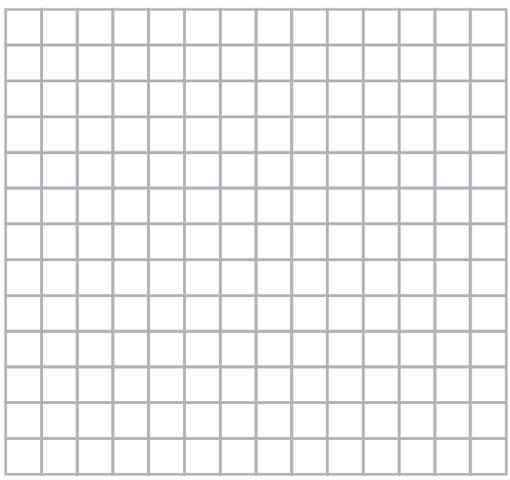
2. Lable the views of the item.




_____ _____ _____

Practise and Apply

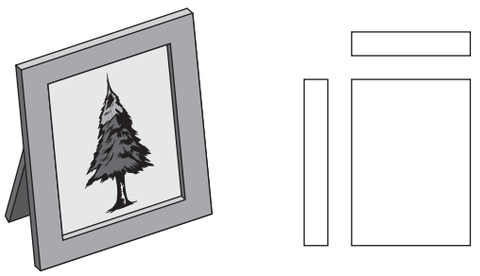
3. Label each view. Sketch the top, side, and front views.



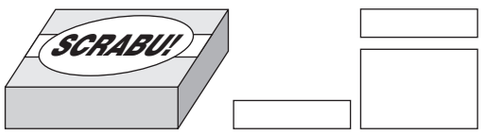
Name: _____ **Date:** _____

4. Circle the top view of each object.

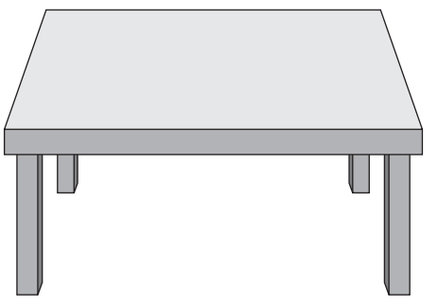
a)

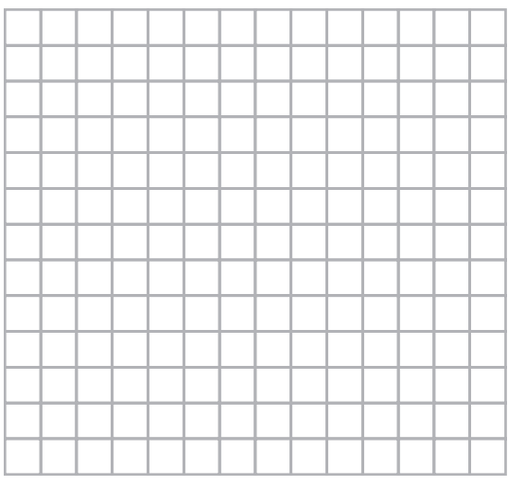


b)



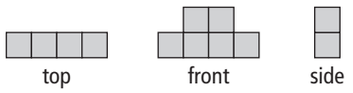
5. Draw and label the top, front, and side views when this table is rotated 90° clockwise.





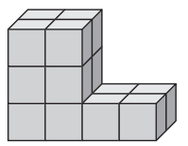
6. Sketch each 3-D object from the three views given.

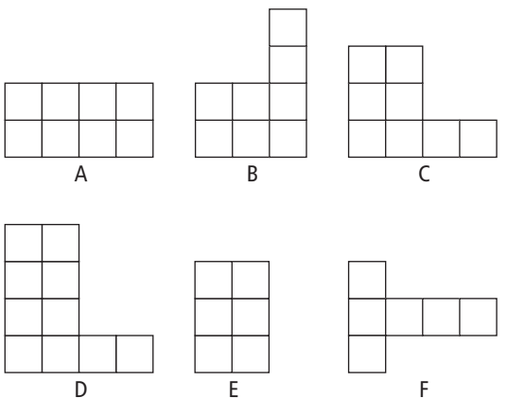
a)



b)

7. Choose the correct top, front, and side view for this object and label each one.





Name: _____ **Date:** _____

5.2 Nets of Three-Dimensional Objects

***MathLinks 8*, pages 170–175**

Key Ideas Review

1. Complete each statement.

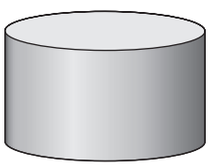
a) A _____ is a 2-D figure that creates a 3-D object when it is folded.

b) Different nets can be folded into the same _____ _____.

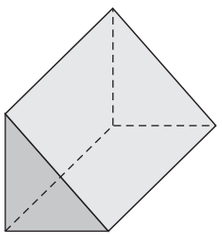
Practise and Apply

2. Draw a net for each object.

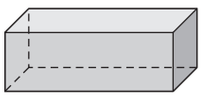
a)

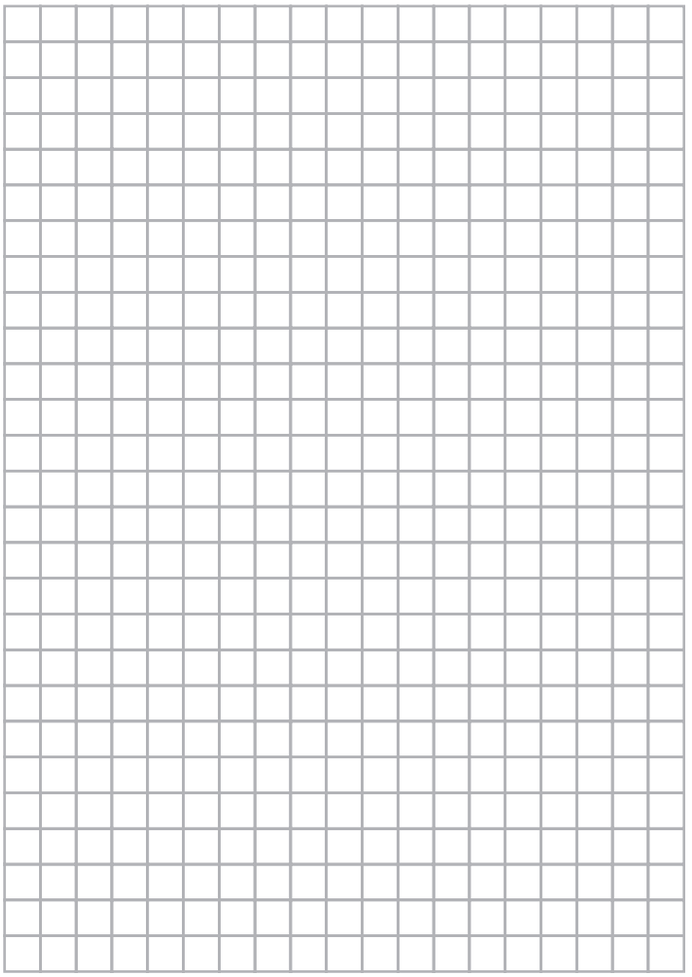


b)



c)



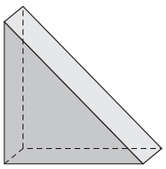


Name: _____ **Date:** _____

3. Using the grid box, draw a net for a rectangular prism with a length of 8 units, width of 2 units and height of 3 units.

4. Draw at least four possible nets for a cube. (Each net must fold to create a cube.)

5. Jocelyn is creating a piece of art for her room, using this object as her base. Draw a net of her object so she can do a draft of her design.



6. A company that manufactures pencils decides to shorten the length of their pencils by 5 cm. A regular pencil measures 19 cm in length.

a) Draw a net of the new pencil with all measurements labelled.

b) Draw a net for a new box that holds ten pencils of the new length. Label your net with all measurements.

Name: _____ **Date:** _____

5.3 Surface Area of a Prism

***MathLinks 8*, pages 176–181**

Key Ideas Review

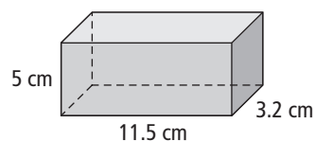
1. Complete the statement.

Finding the sum of all the areas of each _____ on a 3-D object is called calculating the _____ _____.

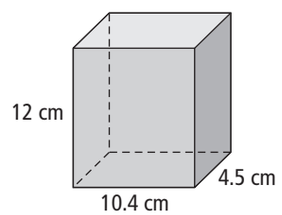
Practise and Apply

2. Calculate the surface area of each rectangular prism to the nearest tenth of a centimetre squared.

a)

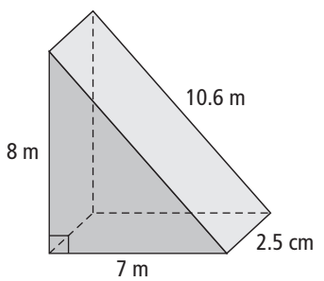


b)

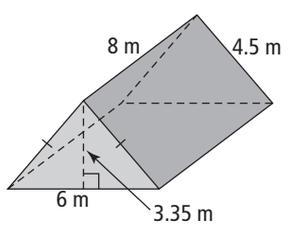


3. Find the surface area of each triangular prism to the nearest tenth of a meter squared.

a)

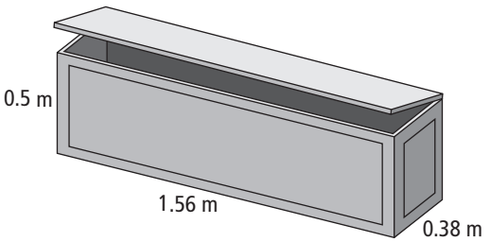


b)

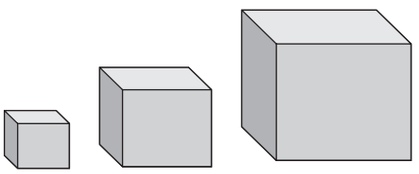


Name: _____ **Date:** _____

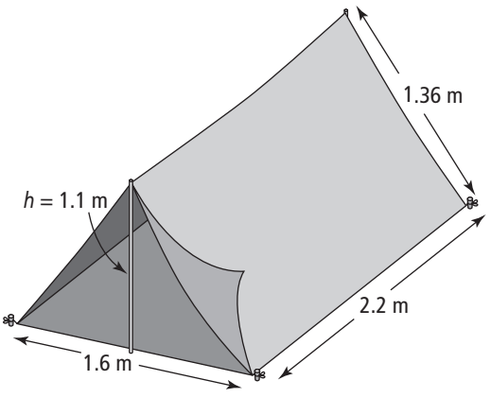
4. Ty is painting this storage bench for the deck. How much area does he need to paint, to the nearest hundredth of a square metre?



5. Peter needs to paint three boxes for a project. The boxes measure 1.5 m × 1.5 m × 1.5 m, 2.5 m × 2.5 m × 2.5 m, and 3.5 m × 3.5 m × 3.5 m respectively. What is the total surface area that Peter will paint, if he paints the outside of all of the boxes?



6. The Rileys need to make a new cover for their tent before going camping this summer. Their tent measures 2.2 m in length by 1.6 m wide, and it has a height of 1.1 m.



a) Calculate the amount of material they need to make the new cover.

b) Waterproof material at the Fabric Warehouse is on sale this week for $24.95 a square metre. Calculate the cost to make the new cover.

Name: _____ **Date:** _____

5.4 Surface Area of a Cylinder

***MathLinks 8*, pages 182–187**

Key Ideas Review

Choose from the following terms to complete #1.

3-D object	add	area	circumference	cylinder

1. Complete each statement.

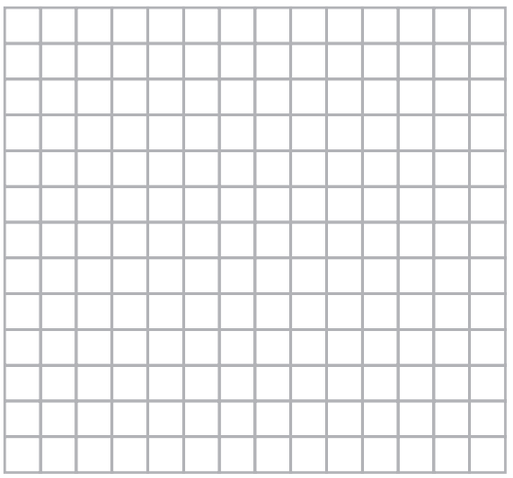
a) To find the surface area of a cylinder, you _____ the _____ of each face of the object.

b) A net of a _____ is made up of three faces.

c) The rectangle in the net of a cylinder uses the _____ of the circle as one dimension.

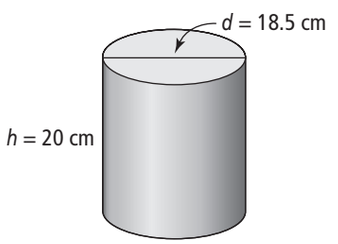
Practise and Apply

2. Sketch a net for this cylinder.

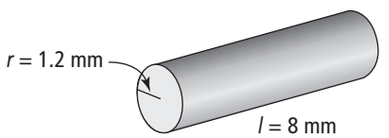


3. Estimate the surface area for each cylinder.

a)

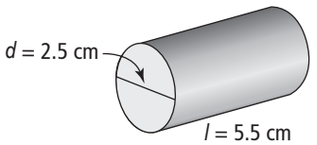


b)



Name: _____ **Date:** _____

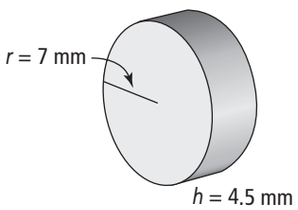
4. Calculate the surface area of this cylinder to the nearest hundredth of a square centimetre.



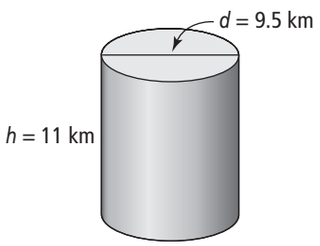
5. Use the following formula to find the surface area of each cylinder to the nearest hundredth of a square unit.

$SA = (2 \times \pi \times r^2) + (\pi \times d \times h)$

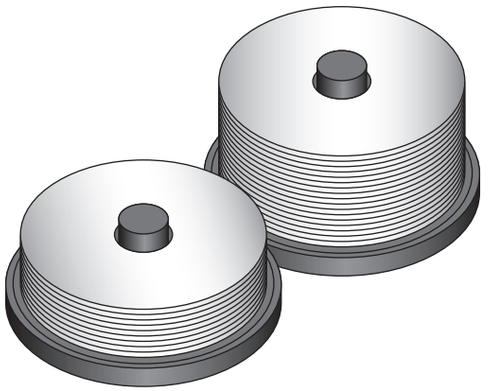
a)



b)



6. Recordable disks come in bulk packaging of various sizes.



A single compact disk has a diameter of 12 cm and a width of 0.1 cm.

a) Calculate the surface area of one compact disk to the nearest tenth of a centimetre squared.

b) Calculate the surface area of a bulk container that holds 50 compact disks. Explain your reasoning.

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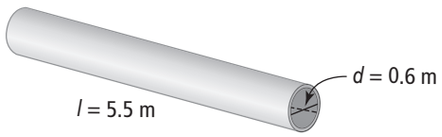
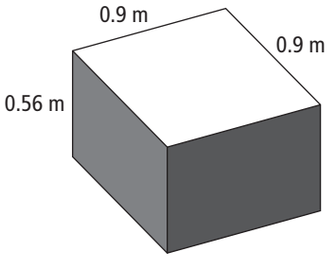
Link It Together



Tunnel



Pause Table

You have been asked to make two parts of the Dog Agility course for this year's competition. One piece is a tunnel made out of durable nylon that the dogs run through. The other piece is a cube to be used as a pause table. The dogs must stay stationary on this table for a fixed amount of time.

1. Sketch the top, front, and side view of each piece.

2. Draw a net of each.

3. Calculate the surface area of each piece to the nearest hundredth of a square metre.

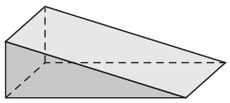
Name: _____ **Date:** _____

Vocabulary Link

Use the visuals or explanation to identify the key words from Chapter 5. Then, write them in the crossword puzzle blank.

Across

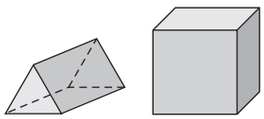
4. 

6. 

Down

1. Is the number of square units needed to cover a 3-D object.

2. 

3. 

5.