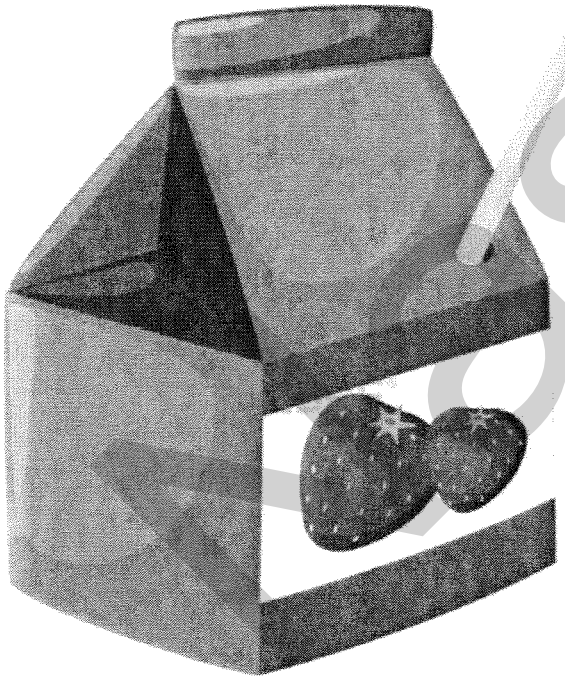
Volume

Booklet
Sec 3



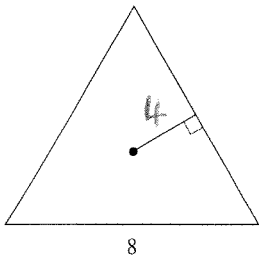
Area of Polygons
Volume

Ms. Nassif

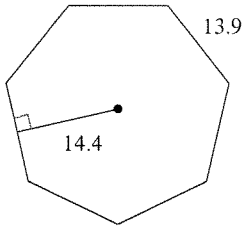
Area of Regular Polygons

Find the area of each regular polygon. Leave your answer in simplest form.

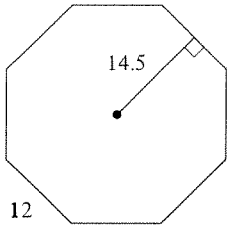
1)



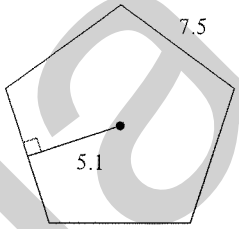
2)



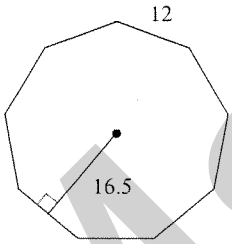
3)



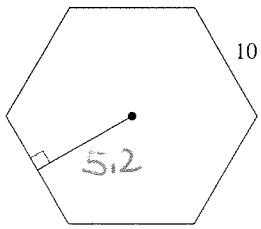
4)



5)

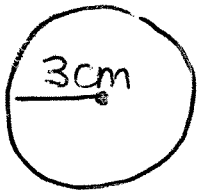


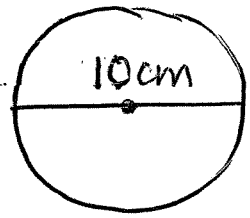
6)



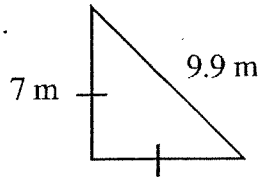
7) pentagon
apothem = 7.3
side = 10.6

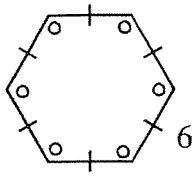
8) triangle
apothem = 14
side = 2.8

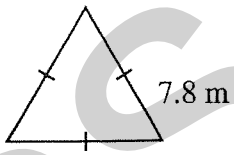
9 

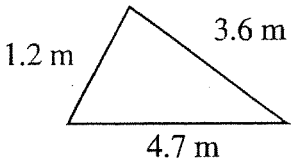
10. 

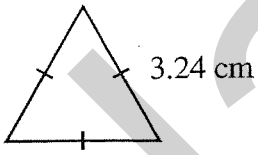
find the perimeter of the following.

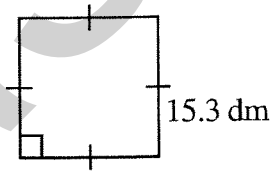
1. 

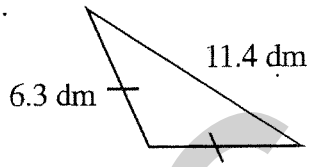
2. 

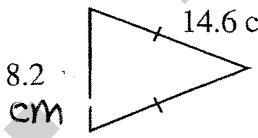
3. 

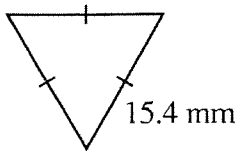
4. 

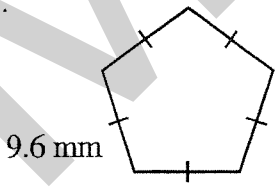
5. 

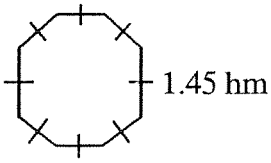
6. 

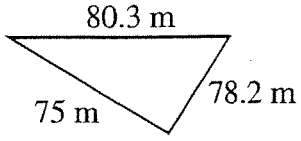
7. 

8. 

9. 

10. 

11. 

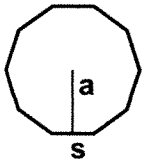
12. 

Name : _____ Score : _____

Teacher : _____ Date : _____

Identify and Calculate the Area and Perimeter for each Polygon.

1)



s = 2.4 mm

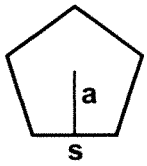
a = 3.693 mm

Area: _____

Perimeter: _____

Type: _____

2)



s = 5.5 cm

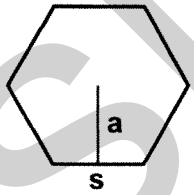
a = 3.785 cm

Area: _____

Perimeter: _____

Type: _____

3)



s = 7.4 inches

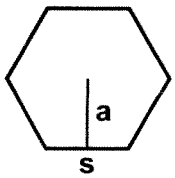
a = 6.409 inches

Area: _____

Perimeter: _____

Type: _____

4)



s = 6.6 cm

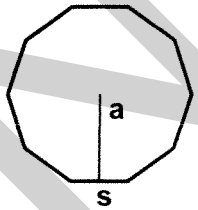
a = 5.716 cm

Area: _____

Perimeter: _____

Type: _____

5)



s = 3.3 inches

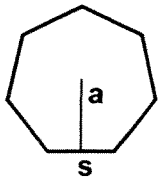
a = 5.078 inches

Area: _____

Perimeter: _____

Type: _____

6)



s = 2.7 cm

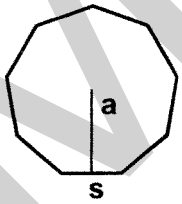
a = 2.803 cm

Area: _____

Perimeter: _____

Type: _____

7)



s = 3 inches

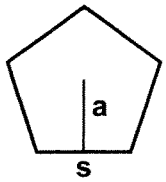
a = 4.121 inches

Area: _____

Perimeter: _____

Type: _____

8)



s = 6.2 mm

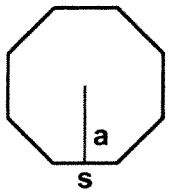
a = 4.267 mm

Area: _____

Perimeter: _____

Type: _____

9)



s = 6.3 mm

a = 7.605 mm

Area: _____

Perimeter: _____

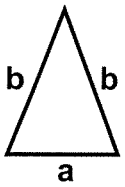
Type: _____

Name : _____ Score : _____

Teacher : _____ Date : _____

Identify and Calculate the Area and Perimeter for each Triangle.

1)



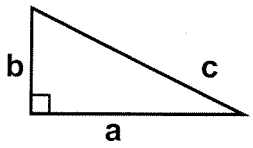
a = 42 cm b = 63 cm

Area: _____

Perimeter: _____

Type: _____

2)



a = 80 cm b = 40 cm

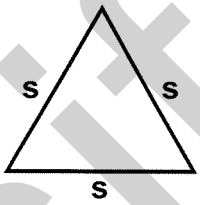
c = 89.44 cm

Area: _____

Perimeter: _____

Type: _____

3)



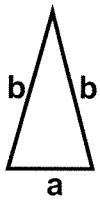
s = 71 mm

Area: _____

Perimeter: _____

Type: _____

4)



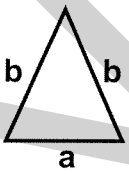
a = 32 cm b = 68 cm

Area: _____

Perimeter: _____

Type: _____

5)



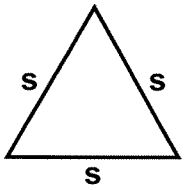
a = 44 cm b = 57 cm

Area: _____

Perimeter: _____

Type: _____

6)



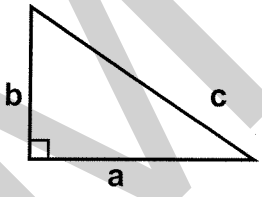
s = 65 mm

Area: _____

Perimeter: _____

Type: _____

7)



a = 85 mm b = 57 mm

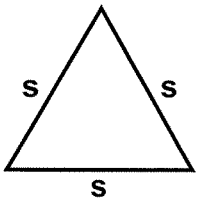
c = 102.34 mm

Area: _____

Perimeter: _____

Type: _____

8)



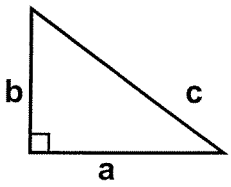
s = 70 cm

Area: _____

Perimeter: _____

Type: _____

9)



a = 73 mm b = 54 mm

c = 90.8 mm

Area: _____

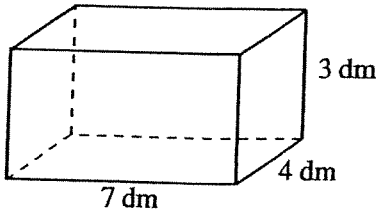
Perimeter: _____

Type: _____

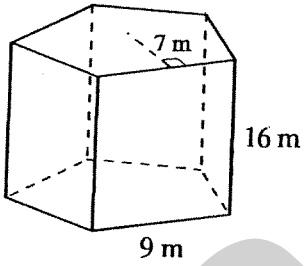
Volume of Prisms and Cylinders

Calculate the volume of the prisms and cylinders.

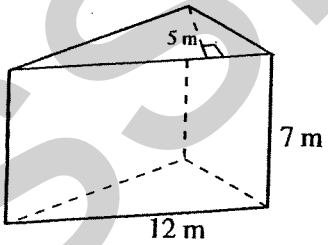
RECTANGULAR PRISM



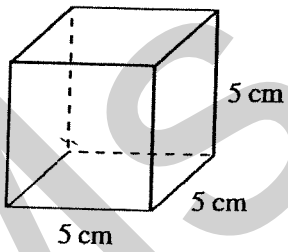
REGULAR POLYGONAL PRISM



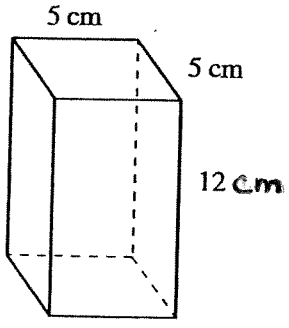
TRIANGULAR PRISM



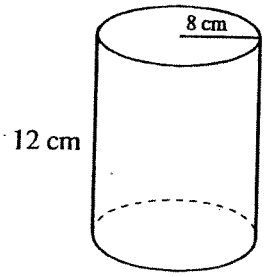
CUBE



SQUARE PRISM

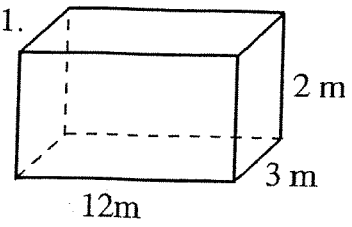


CYLINDER

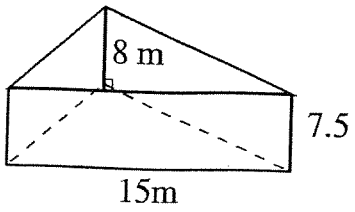


Find the volume of each of the following prisms.

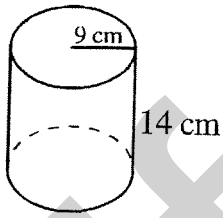
1.



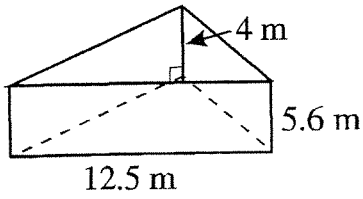
2.



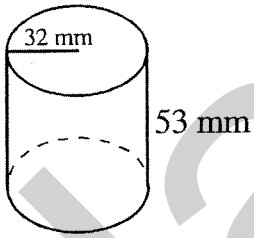
3.



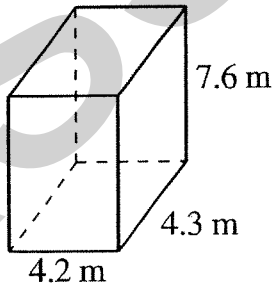
4.



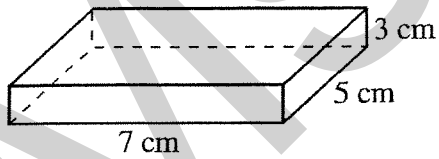
5.



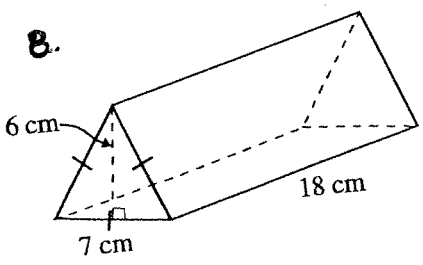
6.



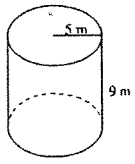
7.



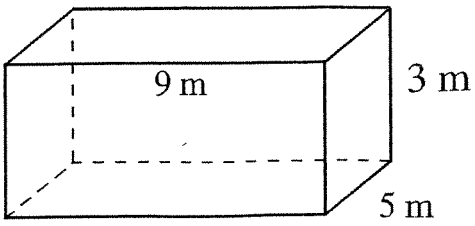
8.



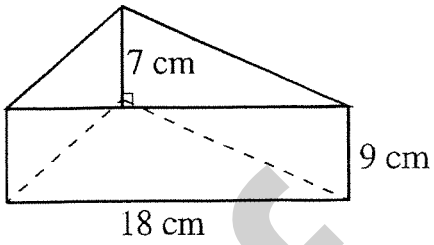
9.



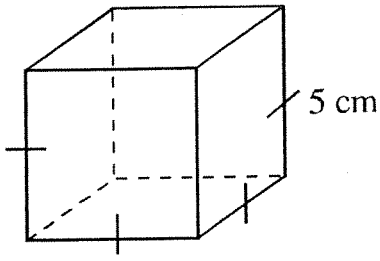
10.



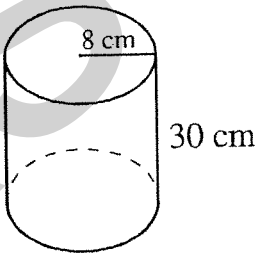
11.



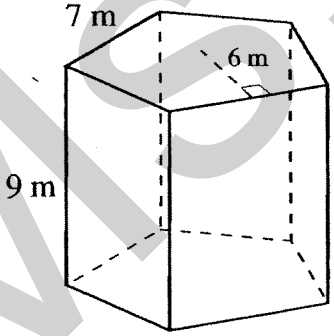
12.



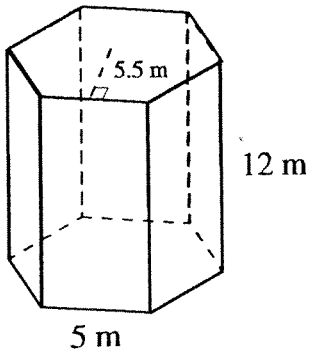
13.



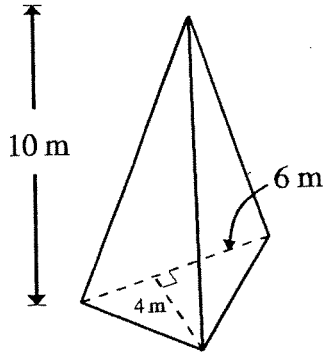
14.



15.



3.



(a) the base is a _____

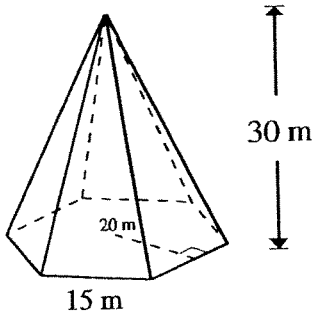
(b) the area of the base is _____

(c) the height of the pyramid is _____

(d) the specific volume formula is _____

(e) the volume is _____

4.



(a) the base is a _____

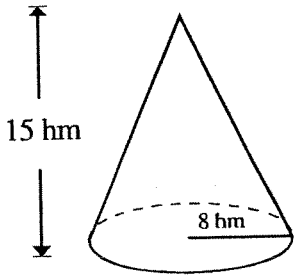
(b) the area of the base is _____

(c) the height of the pyramid is _____

(d) the specific volume formula is _____

(e) the volume is _____

5.



(a) the base is a _____

(b) the area of the base is _____

(c) the height of the cone is _____

(d) the specific volume formula is _____

(e) the volume is _____

1. A decorative box is in the shape of a triangular regular pyramid. Each side of the base is 7.5 centimetres and the altitude of the triangular base is 4.6 centimetres. The height of this box is 14 centimetres. What is the capacity of this box?

2. What is the height of a pentagonal regular pyramid having a volume of 141.7 cubic metres if the apothem measure 3.4 metres and the length of one side of its base is 5 metres.

3. Stephen has a tent that is cone shaped. It is 2 metres high and it has a diameter of 3 metres. What is the volume of Stephen's tent?

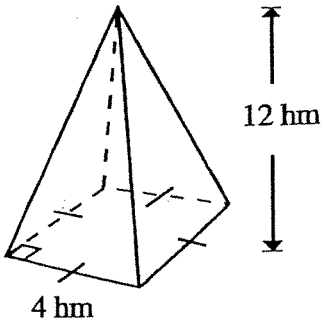
4. If a garden measure 7 metres by 5 metres, how many cubic metres of dirt must be added to raise the level of the garden by one decimetre?

5. A cone shaped piece of metal has a volume of 84 cubic centimetres and it has a height of 28 centimetres. What is the area of the base of this piece of metal?

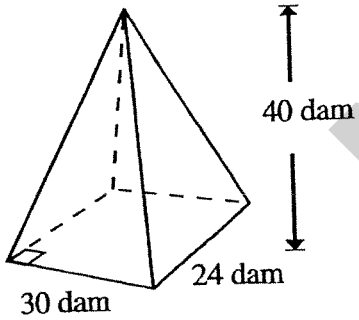
Volume of Pyramids and Cones

Calculate the volume of the pyramids and cones.

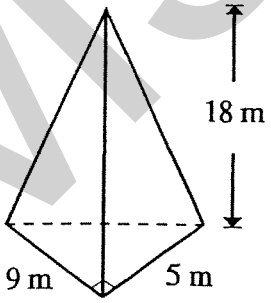
SQUARE PYRAMID



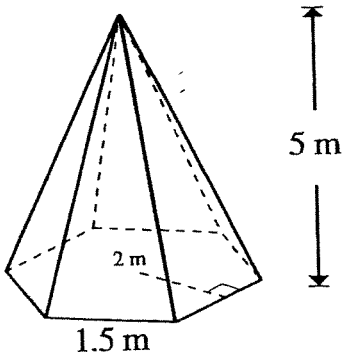
RECTANGULAR PYRAMID



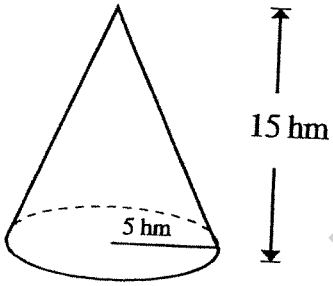
TRIANGULAR PYRAMID



REGULAR POLYGONAL PYRAMID

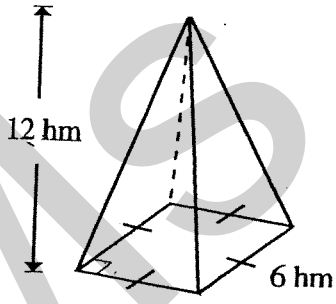


CONE



For each geometric shape below provide the missing word or value to complete the statements.

1.



(a) the base is a _____

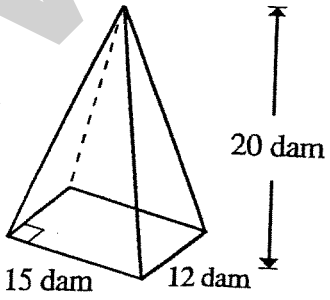
(b) the area of the base is _____

(c) the height of the pyramid is _____

(d) the specific volume formula is _____

(e) the volume is _____

2.



(a) the base is a _____

(b) the area of the base is _____

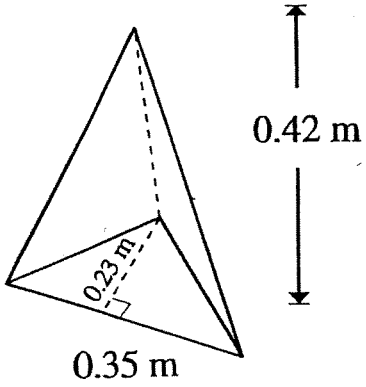
(c) the height of the pyramid is _____

(d) the specific volume formula is _____

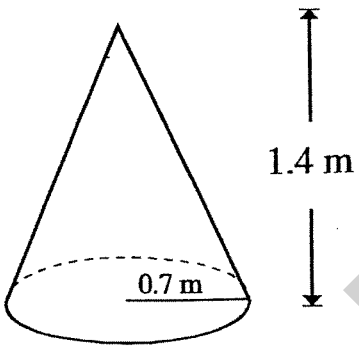
(e) the volume is _____

Calculate the volume of the following pyramids and cones.

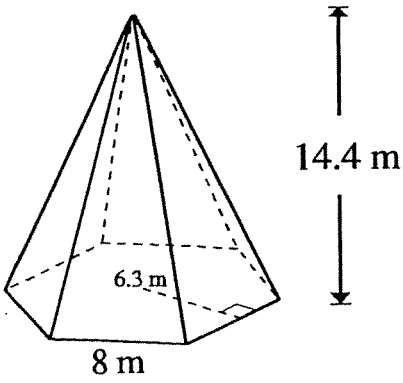
1.



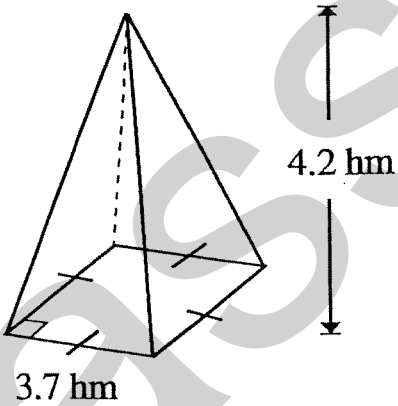
2.



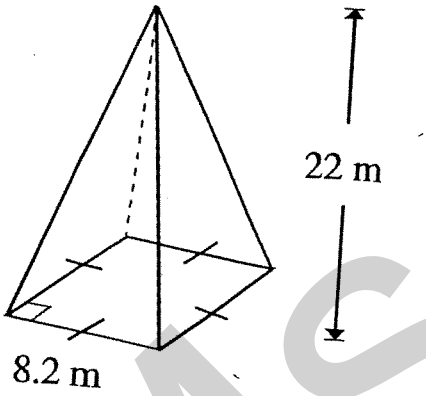
3.



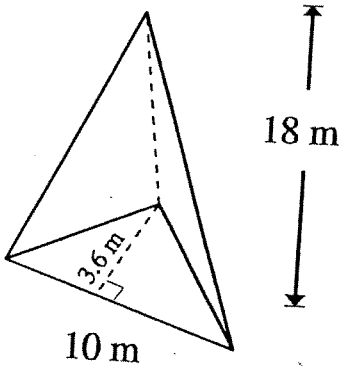
4.



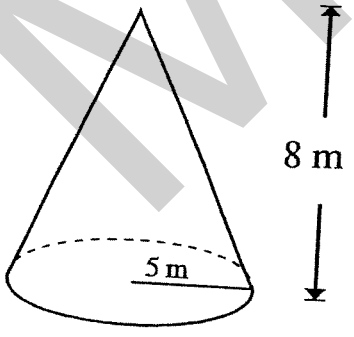
5.



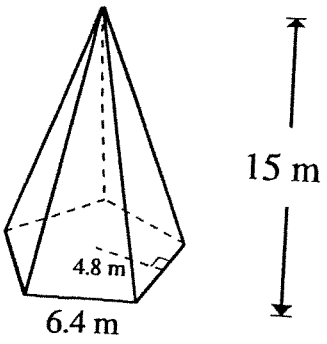
6.



7.

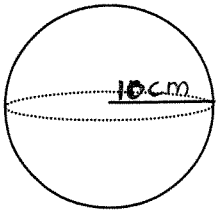


8.



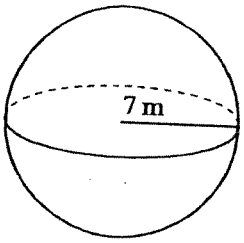
Volume of Spheres

Sphere

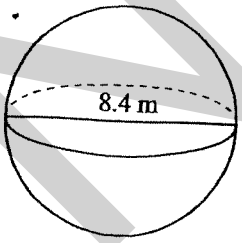


Calculate the volume of the following spheres.

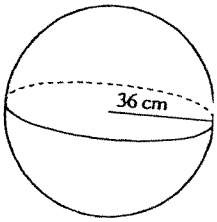
1.



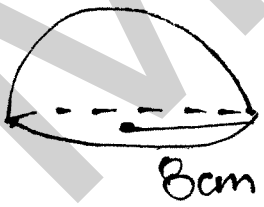
2.



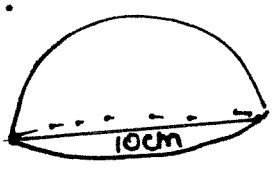
3.



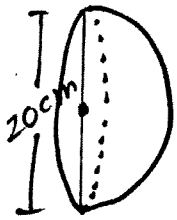
4.



5.

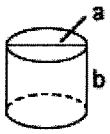


6.

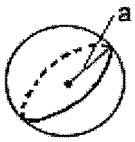


PRISMS, PYRAMIDS, CONES & SPHERES

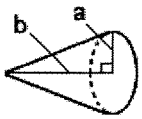
Find the volume of the following figures. Show work on looseleaf.

1 

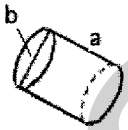
a = 5km
b = 10 km ____

2 

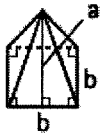
a = 9mm ____

3 

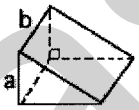
a = 8m
b = 11m ____

4 

a = 4km
b = 14km ____

5 

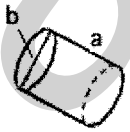
a = 1km
b = 4km ____

6 

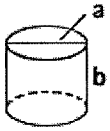
a = 3m
b = 7m
c = 9m ____

7 

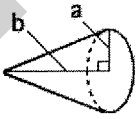
a = 2.1m ____

8 

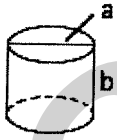
a = 7km
b = 18km ____

9 

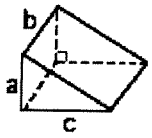
a = 5km
b = 22km ____

10 

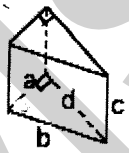
a = 9m
b = 18m ____

11 

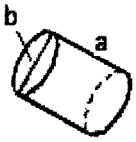
a = 2km
b = 10km ____

12 

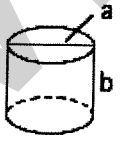
a = 2.2
b = 6.2m
c = 12m ____

13 

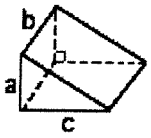
a =6
b =12
c =15
d =10 ____

14 

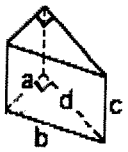
a = 4km
b = 16km ____

15 

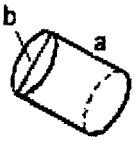
a = 3km
b = 19km ____

16 

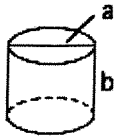
a = 3.3m
b = 6.2m
c = 8m ____

17 

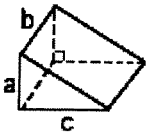
a =3
b =9
c =13
d = 14 ____

18 

a = 6km
b = 17km ____

19 

a = 6km
b = 24km ____

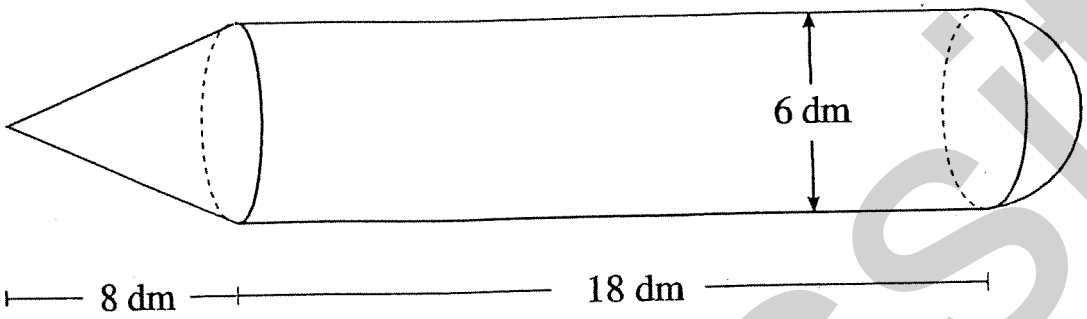
20 

a = 5.1m
b = 3m
c = 25m ____

13

Volume of Decomposable Solids

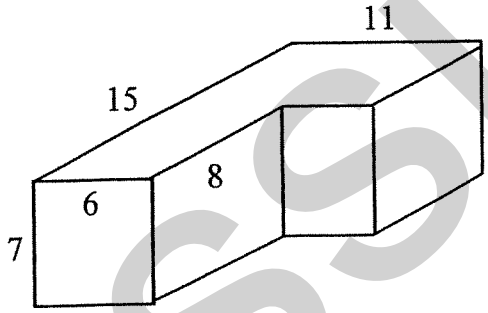
What is the total volume of the shape below?



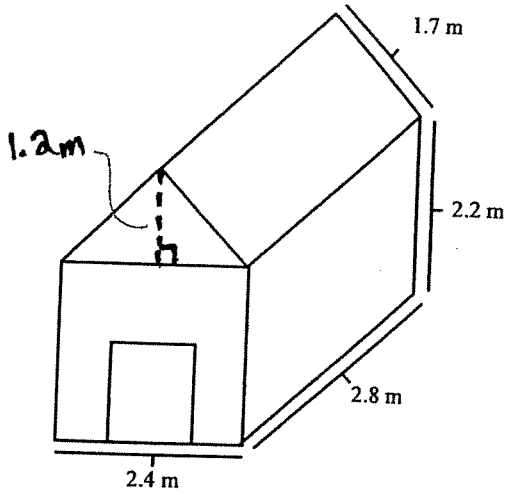
Volume of Decomposable Solids

Calculate the volume of the following decomposable solids.

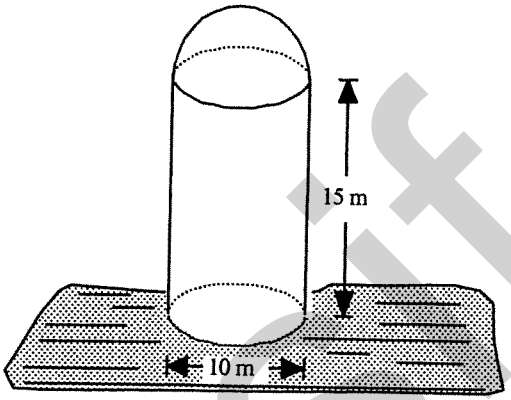
1



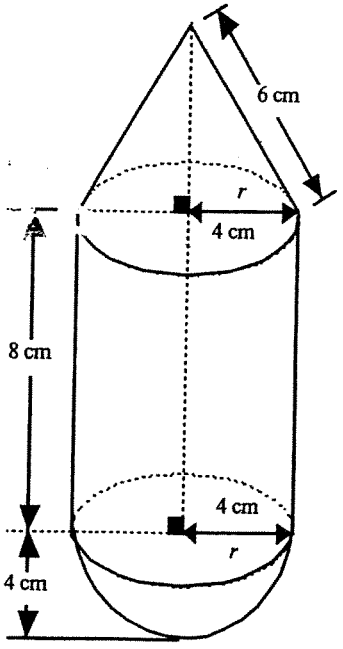
2



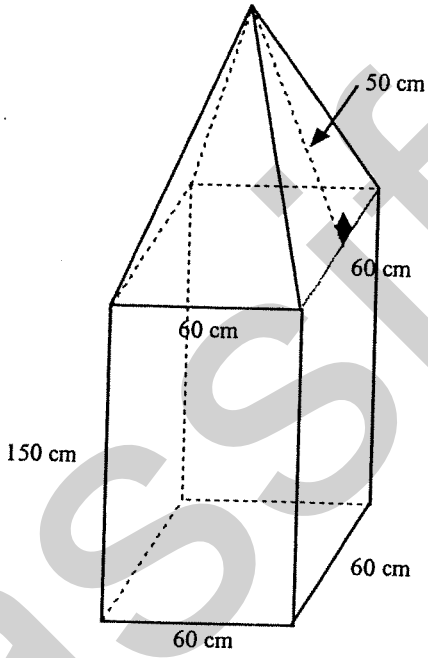
3



4



5



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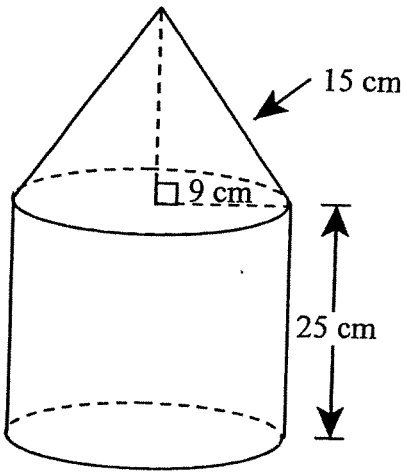
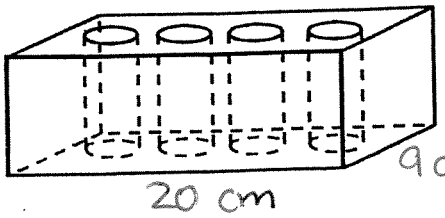


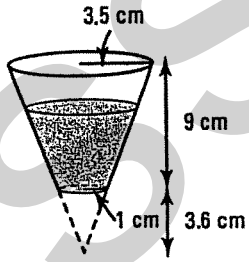
Volume of Decomposable Solids

1. Bricks are made in the shape of rectangular prisms as illustrated below. Four cylindrical holes are drilled in each brick so that these holes can be filled with mortar or cement to ensure that the bricks will stay together when building a fireplace. Calculate the volume of one brick.

(diameter of each hole is 1.5 cm)

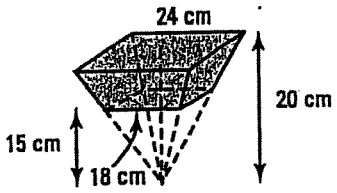


2. A plastic cup has the shape illustrated on the right. If Eric fills it to $\frac{3}{4}$ the height with lemonade, how much lemonade (in cl) will be poured into the cup?



3. A water cooler has a cylindrical shape with a radius of 15 cm and a height of 42 cm. It is filled to capacity. How many cups in the shape of a cone can be filled fully by this water cooler if each cup has a 3 cm radius and 7 cm height?

4. A flower pot has the shape represented on the right. What is the volume (in litres) of dirt that this pot contains when it is filled to the top?



5. A cylindrical can contains 3 tennis balls with a radius of 3.25 cm as illustrated on the right. What is the volume of the unoccupied space in this cylinder?