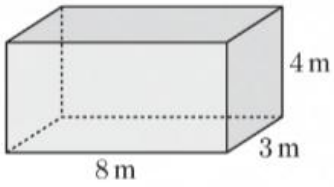
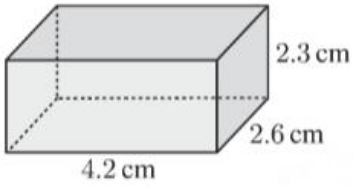
1 Find the volume of:

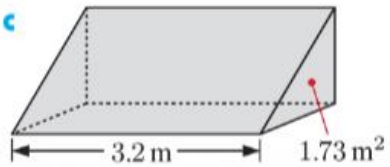
a



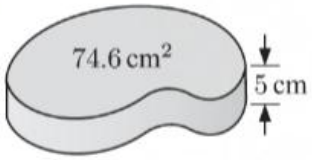
b



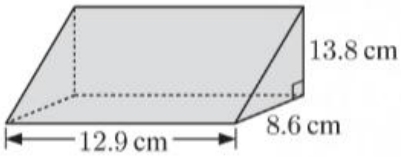
c



d



e



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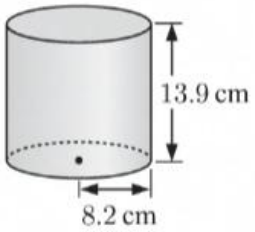
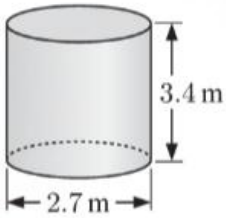


g



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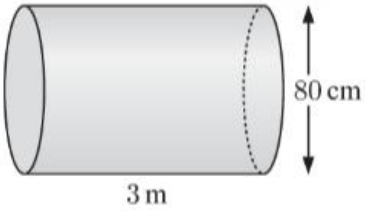
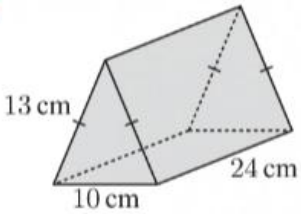


i



2 A circular cake tin has radius 20 cm and height 7 cm. When cake mix was added to the tin, its depth was 2 cm. After the cake was cooked it rose to 1.5 cm below the top of the tin.

a Sketch these two situations.

b Find the volume of: **i** the cake mix **ii** the cooked cake.

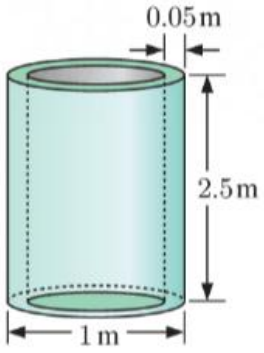
c What was the percentage increase in the volume of the cake while it cooked?

4 The Water Supply department uses huge concrete pipes to drain stormwater.

a Find the external radius of a pipe.

b Find the internal radius of a pipe.

c Find the volume of concrete necessary to make one pipe.

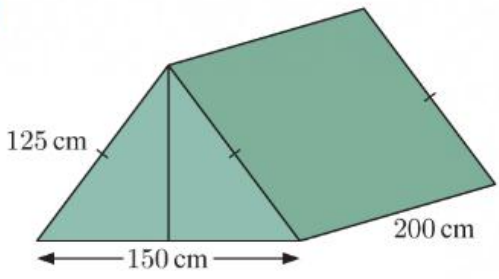


5 A rectangular garage floor 9.2 m by 6.5 m is to be concreted to a depth of 120 mm.

a What volume of concrete is required?

b Concrete costs \$135 per m^3, and is only supplied in multiples of 0.2 m^3. How much will the concrete cost?

10



A scout's tent is 150 cm wide and 200 cm long. It has the shape of an isosceles triangular prism as shown.

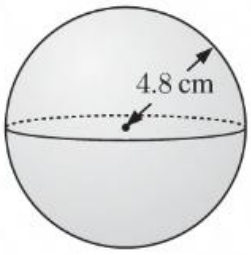
a Find the height of each vertical support post.

b Find the volume of the tent.

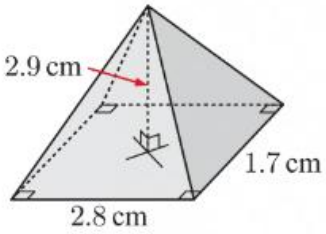
c Find the total area of the canvas in the tent, including the ends and floor.

1 Find the volume of:

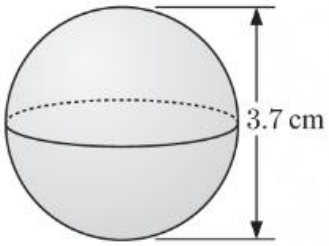
a



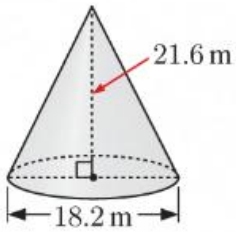
b



c



d



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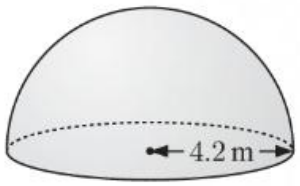
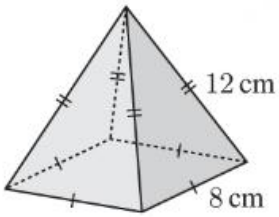
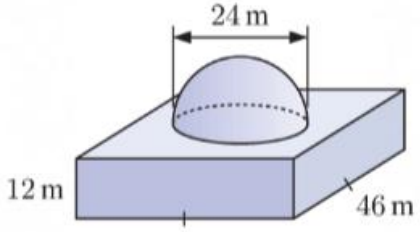


f

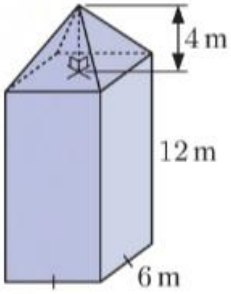


2 Find the volume of:

a



b



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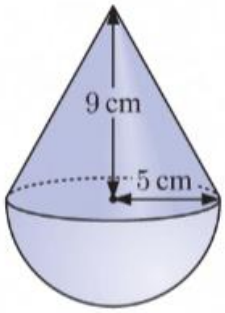
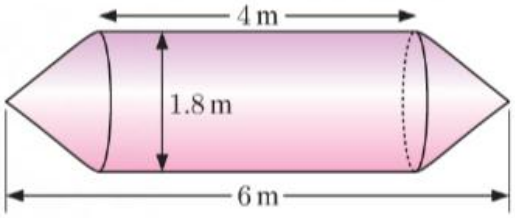


3 A ready mixed concrete tanker is to be constructed from steel as a cylinder with conical ends.



a Calculate the total volume of concrete that can be held in the tanker.

b How *long* would the tanker be if the ends were hemispheres instead of cones, but the cylindrical section remained the same?

c How much more or less concrete would fit in the tanker if the ends were hemispheres instead of cones?

d Show that the surface area of the tanker:

i with conical ends is about 30 m^2 **ii** with hemispherical ends is about 33 m^2.

e Overall, which do you think is the better design for the tanker? Give reasons for your answer.

4 Find:

a the height of a glass cone with base radius 12.3 cm and volume 706 cm^3

b the radius of a spherical weather balloon with volume 73.62 m^3

c the base radius of a cone with height 6.2 cm and volume 203.9 cm^3.