0.2 Exercise Surface Area of Cones & Spheres

A Use $\pi \doteq 3.14$. Remember to round your answers according to the accuracy of the measures given in the questions.

1 (a) What do the variables of each of these formulas represent?

(i) Surface Area, S, of a cone $S = \pi r^2 + \pi rs$

(ii) Surface Area, S, of a sphere $S = 4\pi r^2$

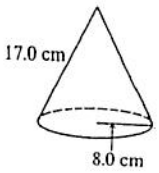
(b) Sketch a diagram to show what measures each variable represents.

2 The cone has a radius of 8.0 cm and a slant height of 17.0 cm.

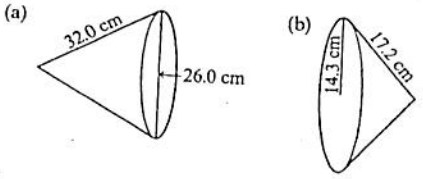
(a) Find the area of the base.

(b) Find the area of the curved surface.

(c) What is the surface area?



3 Find the surface area of each of the following cones.

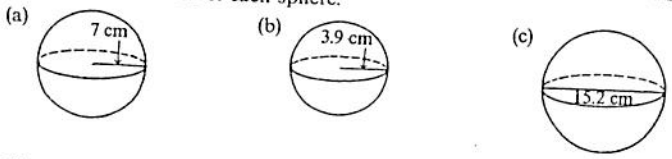


4 Calculate the area of each cone.

(a) radius = 3.6 cm, slant height = 12.5 cm

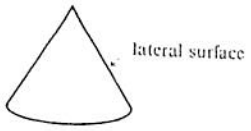
(b) diameter = 11.8 cm, slant height = 11.3 cm

5 Find the surface area of each sphere.



B Check each of your answers to see if it is reasonable.

6 The curved surface of a cone is called the **lateral surface**. Calculate the lateral surface area if the slant height is 8.5 cm, and the radius of the base is 5.2 cm.



7 (a) The area of the lateral surface of a cone is 32.64 cm^2. If the slant height is 2.81 cm, find the radius.

(b) The area of the lateral surface of a cone is 184.82 cm^2. If the radius is 6.75 cm, find the slant height.

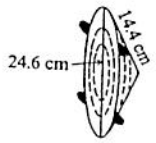
8 (a) The slant height of a cone is 18.10 cm. Calculate the area of the lateral surface if the radius is 7.23 cm.

(b) By how much does the area of the lateral surface increase if the radius is increased by 1.00 cm?

9 A stereo speaker is shown.

(a) Find the approximate area of material used to make the speaker.

(b) What assumption do you make in (a)?



10 The radius of a volleyball is 15.2 cm. By how much does the surface area of the volleyball increase if you inflate the ball so that the radius increases by 2.0 cm?

11 (a) The slant height of a cone is doubled. By what percentage is the lateral surface changed?

(b) If the radius of a cone is doubled, what change occurs in its area?

(c) If the radius of a cylinder is doubled, how does the curved surface change? How does the area of its base change?

(d) If the radius of a sphere is doubled, by what percentage is its surface area increased?

10.2 Exercise, page 393 1838

2.a)201 cm^2 b)427 cm^2 c)628 cm^2 3.a)183 cm^2 b)1414 cm^2
4.a)182 cm^2 b)319 cm^2 5.a)600 cm^2 b)190 cm^2 c)725 cm^2
6. 140 cm^2 7.a)3.70 cm b)8.72 cm 8.a)411 cm^2 b)57 cm^2
9.a)556 cm^2 10. 814 cm^2 11.a)100% increase