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MATH & ENGLISH

PROFESORA SOSA CECILIA

Spaces and Volumes

1) What regular maintenance does your computer need? Listen to a

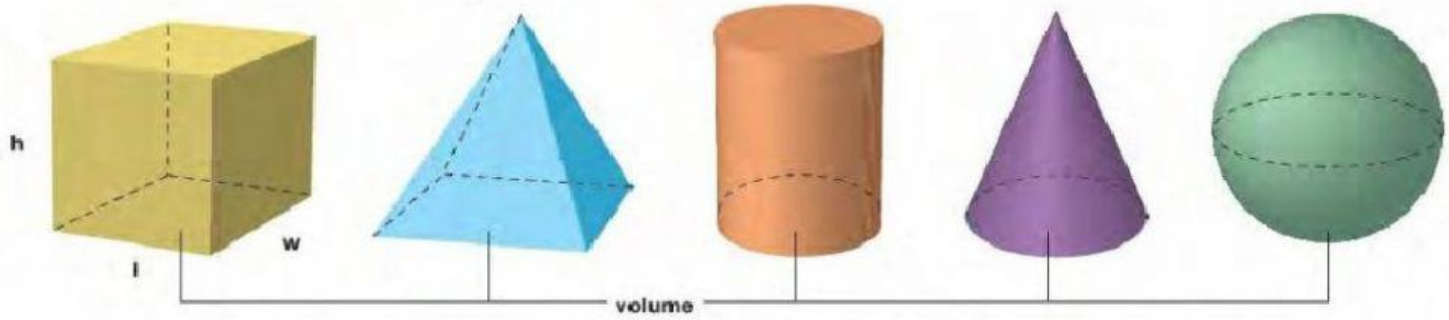


Figure 1: Three-dimensional (3D) shapes

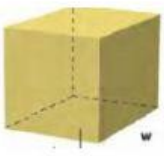
What are some for examples of one- and two-dimensional shapes?

What dimensions can you calculate for one-dimensional shapes?

What dimensions can you calculate for two- dimensional shapes?

What new dimension can you calculate for three-dimensional shapes?

Think of objects that resemble these shapes



1) Read the text and look at Figure 1.

A line has only one dimension: length. A square has two dimensions: length and height. Some shapes have three dimensions: length, height and width. **Cubes, pyramids, cylinders, cones and spheres** are **three-dimensional** shapes.

Table 1: Formulas for volume of cylinder, cone and sphere

Object	Formula
cylinder	$\pi r^2 h$
cone	$\frac{\pi r^2 h}{3}$
sphere	$\frac{4\pi r^3}{3}$

Two-dimensional shapes have area. Three-dimensional shapes have **volume**. **Cuboid** shapes are based on a square or a rectangle. The volume is simply the area (l x h) times the width. For example, a cuboid which is 4 cm x 3 cm x 2 cm has a volume of 24 **cubic centimeters** (cc or cm^3). A pyramid is often based on a square but the formula is a little more complicated. It is (l x h x w) + 3. So a pyramid with a base of 4 cm x 3 cm and a height of 3 cm has a volume of 36 + 3 = 12 cc.

Cylindrical, conical and **spherical** shapes are based on circles, so the formulas for volume use the constant, π. The formulas are shown in Table 1.

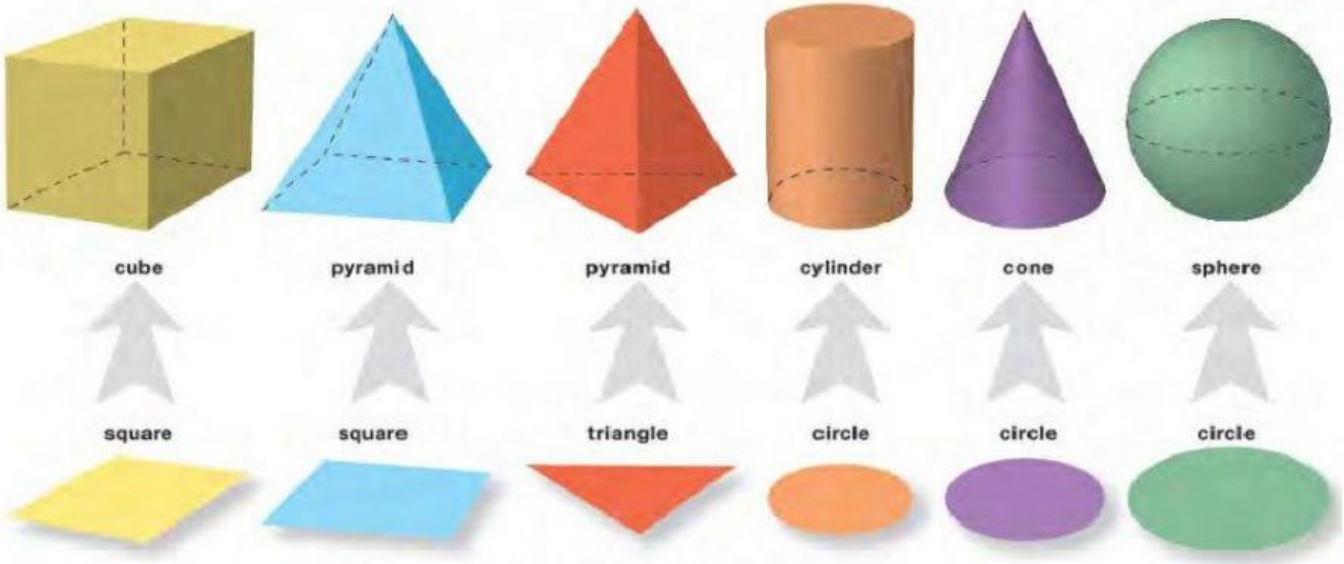


Figure 2: Changing 2D shapes to 3D shapes

Which of the shapes in Figure 1 are 'cuboid'?

How can you describe the cylinder and cone?

And how can you describe a baseball?

Why is it necessary to distinguish between cuboid, conical and spherical shapes?

2) Look at Figure 3. Complete the sentences.

1- The bottom shape is a _____ .

2- The centre shape is a _____ .

3- The top shape is a _____ .

4- The height of the cylinder is_____ .

5- The radius of the cone is _____ .

6- The _____ has the smallest volume.

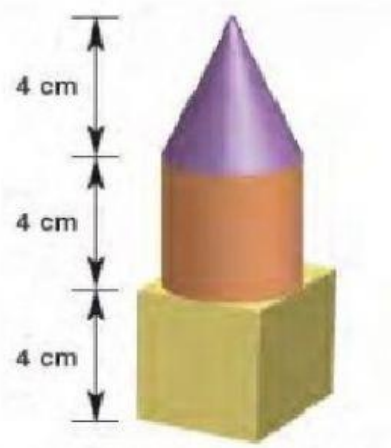


Figure 3: Three 3D shapes

3) Look at the shapes in Figure 4 and complete the sentences. Use the correct volume in the box.

113 cm^3	33.515 cm^3	40 cm^3	48 cm^3	37.7 cm^3

1 The volume of the cone is _____

2 The volume of the pyramid is _____

3 The volume of the sphere is _____

4 The volume of the cylinder is _____

5 The volume of the cuboid is _____

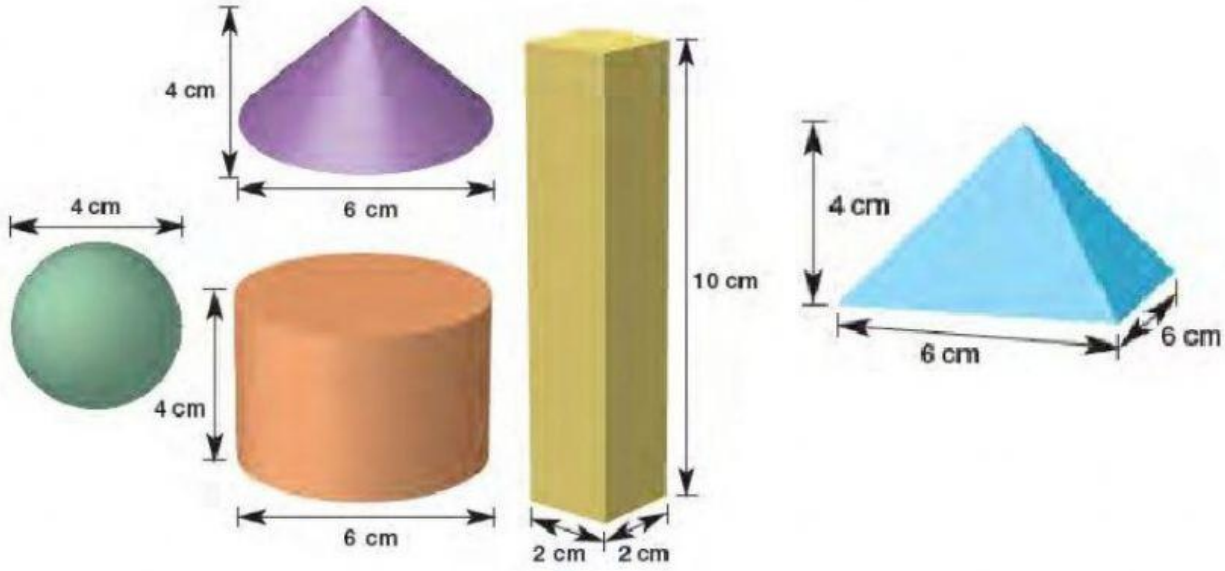


Figure 4: Some 3D shapes

4) Write the noun for each adjective.

1- cylindrical _____

2- spherical _____

3- cuboid/cubic _____

4- conical _____

5 – square _____

6- rectangular _____

7- triangular _____

8 - circular _____