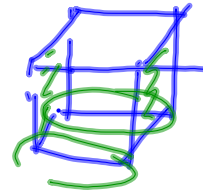
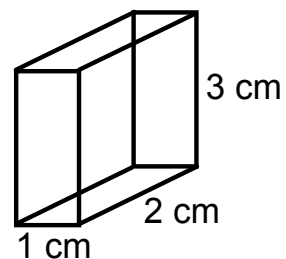
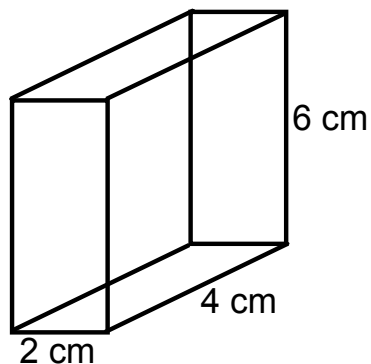


**Similar Solids:**

- \* Solids that have exactly the same shape, but not necessarily the same size.
- \* Comparing the ratios of corresponding sides will indicate if they are similar.  
 $6:4$
- \* In two similar polyhedra, all corresponding faces are similar and all corresponding edges are proportional.
- \* All spheres are similar

**Scale Factor:**

- \* The ratios of measures.



## Congruent Solids:

- \* Solids that have exactly the same shape and the same size. (Special similar solids)
  
- \* Comparing the ratios of corresponding sides and getting a 1:1 ratio.
  
- \* The following conditions need to be met if 2 figures are going to be  $\cong$ :
  - \*\* corresponding angles are  $\cong$  .
  - \*\* corresponding edges are  $\cong$  .
  - \*\* corresponding faces are  $\cong$  .
  - \*\* volumes are equal.

## Ratios

If two solids are similar with a scale factor  $a:b$ , then the **surface areas** have a ratio  $a^2:b^2$ , and the **volumes** have a ratio of  $a^3:b^3$ .

1. Softballs have a diameter of 3.8 inches while baseballs have a diameter of about 2.9 inches.

a. Find the scale factor of the two balls.

$$3.8 : 2.9 \quad a=3.8$$

$$b=2.9$$

b. Find the ratio of the surface area of the two balls.

$$3.8^2 : 2.9^2$$

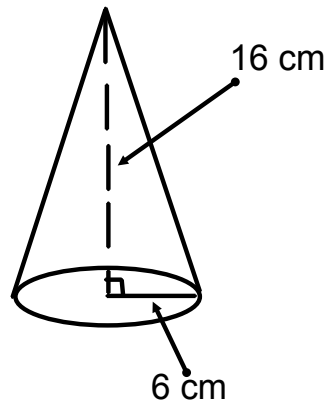
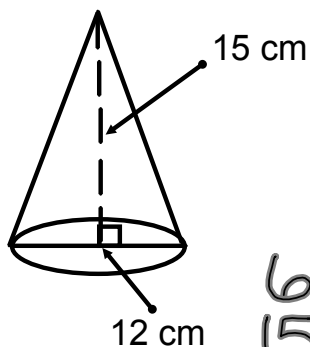
$$14.44 : 8.41$$

c. Find the ratio of the volume of the two balls.

$$3.8^3 : 2.9^3$$

$$54.87 : 24.39$$

2. Determine whether each pair of solids is similar, congruent or neither.



$$6:6 = 1:1$$

$$15:16$$

neither

b. Two spheres, one has a diameter of 20 in. the other has a radius of 11 inches.

Similar