Geometry

12.7 Explore Similar Solids

# similar Cone2Similar Solids

necessarily the same size

* Solids with same shape but not \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

proportional

* The lengths of sides are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

scale factor

* The ratios of lengths is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Congruent Solids

1:1

* Similar solids with scale factor of \_\_\_\_\_\_\_\_\_\_\_
* Following four conditions must be true

congruent

* + Corresponding angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

congruent

* + Corresponding edges are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

equal

* + Areas of corresponding faces are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

equal

* + The volumes are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Determine if the following pair of shapes are similar, congruent or neither.**

Cone A: r = 4.3, h = 12, slant height = 14.3

Cone B: r = 8.6, h = 25, slant height = 28.6

Ratios: , . Not proportional so neither

Cylinder A: r = 5.5, height = 7.3

Cylinder B: r = 5.5, height = 7.3

1:1 ratio so likely congruent. One could be right and the other oblique.

ither

## Similar Solids Theorem

a:b

If 2 solids are similar with a scale factor of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

a2:b2

then the areas have a ratio of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

a3:b3

and the volumes have a ratio of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Cube C has a surface area of 216 square units and Cube D has a surface area of 600 square units. Find the scale factor of C to D.

Areas:

Find the edge length of C.

Cube surface area:

Use the scale factor to find the volume of D.

Volumes:

volume of D is 1000

Assignment: 850 #2-26 even, 30-48 even = 23

Extra Credit 854 #2, 4 = +2