Name_____ Date_____

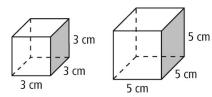# 11.7 – Exploring Similar Solids

Are the two figures similar? If so, give the scale factor of the first figure to the second figure.
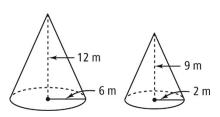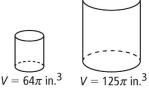
1)

3 cm
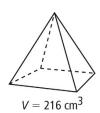3 cm
3 cm
5 cm
5 cm
5 cm

2)

4 ft
6 ft
10 ft
9 ft

3)

12 m
6 m
9 m
2 m

Each pair of figures is similar. Use the given information to find the scale factor of the smaller figure to the larger figure.

4)

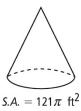$V = 64\pi$ in.^{3} $V = 125\pi$ in.^{3}

5)

$V = 125$ cm^3 $V = 216$ cm^3

6)

S.A. $= 36\pi$ ft^2 S.A. $= 121\pi$ ft^2

7)   A shipping box holds 350 golf balls. A larger shipping box has dimensions triple the size of the other box. How many golf balls does the larger box hold?

The surface areas of two similar figures are given. The volume of the larger figure is given. Find the volume of the smaller figure.

8) S.A. = 36 m^2
S.A. = 225 m^2
$V = 750$ m^3

9) S.A. = 108 in.^{2}
S.A. = 192 in.^{2}
$V = 1408$ in.^{3}

The volumes of two similar figures are given. The surface area of the smaller figure is given. Find the surface area of the larger figure.

10) $V = 8$ m^3
$V = 27$ m^3
S.A. 36 = m^2

11) $V = 125$ in.^{3}
$V = 216$ in.^{3}
S.A. = 200 in.^{2}

12) A cylindrical thermos has a radius of 2 in. and is 5 in. high. It holds 10 f oz. To the nearest ounce, how many ounces will a similar thermos with a radius of 3 in. hold?

13) A small, spherical hamster ball has a diameter of 8 in. and a volume of about 268 in.^{3}. A larger ball has a diameter of 14 in. Estimate the volume of the larger hamster ball.

14) Two similar pyramids have heights 6 m and 9 m.

   a)   What is their scale factor?

   b)   What is the ratio of their surface areas?

   c)   What is the ratio of their volumes?

15) The lateral area of two similar cylinders is 64 m^2 and 144 m^2. The volume of the larger cylinder is 216 m^3. What is the volume of the smaller cylinder?

16) The volumes of two similar prisms are 135 ft^3 and 5000 ft^3.

   a)   Find the ratio of their heights.

   b)   Find the ratio of the area of their bases.