NAME ______________________________________ DATE ______________ PERIOD _____

Study Guide and Intervention

7MG2.3

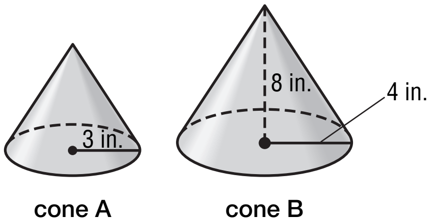
Similar Solids

Similar solids have the same shape, their corresponding linear measures are proportional, and their corresponding faces are similar polygons.

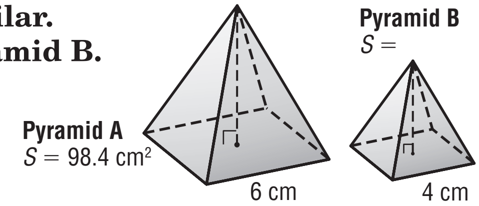
Example 1 **The cones at the right are similar. Find the height of cone B.**

$\frac{8}{x} = \frac{4}{3}$	Write a ratio.
$4x = 24$	Find the cross products.
$x = 6$	Simplify.

The height of the smaller cone is 6 inches.



Example 2 **The pyramids at the right are similar. Find the total surface area of pyramid B.**



The scale factor $\frac{a}{b}$ is $\frac{6}{4}$ or $\frac{3}{2}$.

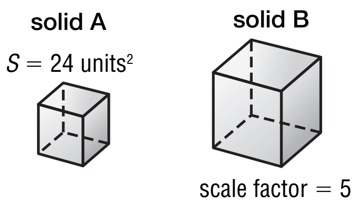
$\frac{\text{surface area of pyramid A}}{\text{surface area of pyramid B}} = \left(\frac{a}{b}\right)^2$	Write a proportion.
$\frac{98.4}{S} = \left(\frac{3}{2}\right)^2$	Substitute the known values. Let S represent the surface area.
$\frac{98.4}{S} = \frac{3}{2}$	$\left(\frac{3}{2}\right)^2 = \frac{3}{2} \cdot \frac{3}{2}$ or $\frac{9}{4}$
$98.4 \cdot 4 = 9S$	Find the cross products.
$\frac{393.6}{9} = \frac{9S}{9}$	Divide each side by 9.
$43.7 \approx S$	Simplify.

The surface area of pyramid B is approximately 43.7 square centimeters.

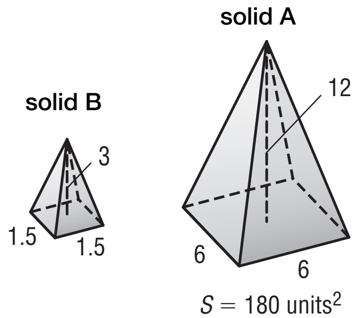
Exercises

For Exercises 1 and 2, the solids in each pair are similar. Find the surface area of solid B.

1.

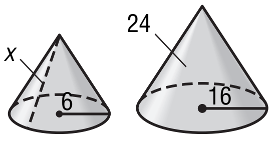


2.



For Exercises 3 and 4, find the value of *x*.

3.



4.