Chapter Summary

1. The list below summarizes area and volume formulas for solids. The cylinder formulas are special cases of the prism formulas with $p = 2\pi r$ and $B = \pi r^2$. Also the cone formulas are special cases of the pyramid formulas with the same substitutions for p and B. To find the total area of each of the four solids, add lateral area to the area of the base(s).

Right prism	L.A. $= ph$	$V = Bh$
Right cylinder	L.A. $= 2\pi rh$	$V = \pi r^2 h$
Regular pyramid	L.A. $= \frac{1}{2}pl$	$V = \frac{1}{3}Bh$
Right cone	L.A. $= \pi rl$	$V = \frac{1}{3}\pi r^2 h$
Sphere	$A = 4\pi r^2$	$V = \frac{4}{3}\pi r^3$

2. If the scale factor of two similar solids is $a:b$, then
   a. the ratio of corresponding perimeters is $a:b$.
   b. the ratio of corresponding areas is $a^2:b^2$.
   c. the ratio of the volumes is $a^3:b^3$.

Chapter Review

1. In a right prism, each ___?___ is also an altitude. **12–1**
2. Find the lateral area of a right octagonal prism with height 12 and base edge 7.
3. Find the total area and volume of a rectangular solid with dimensions 8, 6, and 5.
4. A right square prism has base edge 9 and volume 891. Find the total area.
5. Find the volume of a regular triangular pyramid with base edge 8 and height 10. **12–2**
6. A regular pentagonal pyramid has base edge 6 and lateral edge 5. Find the slant height and the lateral area.

A regular square pyramid has base edge 30 and total area 1920.

7. Find the area of the base, the lateral area, and the slant height.
8. Find the height and the volume of the pyramid.
9. Find the lateral area and the total area of a cylinder with radius 4 and height 3. **12–3**
10. Find the lateral area, total area, and volume of a cone with radius 6 cm and slant height 10 cm.
11. A cone has volume 8π cm^3 and height 6 cm. Find its slant height.
12. The radius of a cylinder is doubled and its height is halved. How does the volume change?