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## **NOTES SECTION 12.5: AREAS AND VOLUMES OF SIMILAR SOLIDS**

### **SIMILAR SOLIDS**

### **AREAS & VOLUMES OF SIMILAR SOLIDS**

#### **I-4: Are the given solids similar?**

- |   |  |
|---|--|
| 1) Two regular square pyramids have heights 10 and 12. The bases are squares with sides 4 and 4.8, respectively.                  | 2) One rectangular solid has length 7, width 5, and height 3. Another rectangular solid has length 14, width 10, and height 9. |
| 3) Two right triangular prisms have heights 4 and 6. Their bases are triangles with sides of 3, 4, 5, and 6, 8, 10, respectively. | 4) Two cylinders have radii 4 cm and 3 cm. The heights are 12 cm and 8 cm, respectively.                                       |

**5-9: Complete the table, which refers to similar prisms.**

	5)	6)	7)	8)	9)
Scale factor					
Ratio of base perimeters					
Ratio of heights					
Ratio of lateral areas					
Ratio of total areas					
Ratio of volumes					

10) Two similar cones have volumes  $27\pi$  and  $64\pi$ . Find the ratio of:

a) the radii	b) the slant heights	c) the lateral areas

11) Two spheres have radii 5 cm and 7 cm. Find the ratio of:

a) the areas	b) the volumes

12) Two spheres have diameters 12 and 28. Find the ratio of :

a) the areas	b) the volumes

13) Two foam plastic balls have scale factor 2 : 3.

a) If the smaller ball has radius 6 cm, what is the radius of the larger ball?	b) If the area of the larger ball is $36\pi \text{ cm}^2$ , what is the area of the smaller ball?	c) If the larger ball weighs 12 g, about how much does the smaller ball weigh? ( <i>Hint: Weight is related to volume.</i> )