Chapter 12

Indicate the best answer by writing the appropriate letter.

1. What is the volume of a rectangular solid with dimensions 12, 9, and 6?
   a. 108 **b.** 216 **c.** 432 **d.** 648
2. What is the total surface area of the solid in Exercise 1?
   a. 234 **b.** 468 **c.** 252 **d.** 360
3. Two similar cones have heights 5 and 20. What is the ratio of their volumes?
   a. 1:64 **b.** 1:4 **c.** 1:16 **d.** 4:16
4. What is the volume of a regular square pyramid with base edge 16 and height 6?
   a. 128 **b.** 256 **c.** 512 **d.** 1536
5. What is the lateral area of the pyramid in Exercise 4?
   a. 256 **b.** 320 **c.** 576 **d.** 640
6. A sphere has area 16π. What is its volume?
   a. $\frac{8\pi}{3}$ **b.** $\frac{32\pi}{3}$ **c.** $\frac{64\pi}{3}$ **d.** $\frac{256\pi}{3}$
7. A cone has radius 5 and height 12. A cylinder with radius 10 has the same volume as the cone. What is the cylinder's height?
   a. 1 **b.** 2 **c.** 3 **d.** 4
8. A cube is inscribed in a cylinder with radius 5. What is the volume of the cube?
   a. $15\sqrt{2}$ **b.** $250\sqrt{2}$ **c.** 125 **d.** 100
9. A plane passes 2 cm from the center of a sphere with radius 4 cm. What is the area of the circle of intersection?
   a. 12π cm^2 **b.** 16π cm^2 **c.** 18π cm^2 **d.** 20π cm^2
10. Find the total surface area of a cylinder with radius 4 and height 6.
    a. 16π **b.** 32π **c.** 48π **d.** 80π
11. Two similar pyramids have volumes 27 and 125. If the smaller has lateral area 18, what is the lateral area of the larger?
    a. 30 **b.** $83\frac{1}{3}$ **c.** 50 **d.** 25
12. The base of a right prism is a regular hexagon with side 4. The height of the prism is 6. What is the volume of the prism?
    a. $144\sqrt{3}$ **b.** $72\sqrt{3}$ **c.** $48\sqrt{3}$ **d.** $36\sqrt{3}$
13. What is the lateral area of the prism in Exercise 12?
    a. 24 **b.** 36 **c.** 72 **d.** 144
14. Find the total surface area of a cone with radius 9 and slant height 12.
    a. 108π **b.** 189π **c.** $81\pi\sqrt{7}$ **d.** 216π