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.** $\dfrac{8\pi}{3}$
   - **b.** $\dfrac{32\pi}{3}$
   - **c.** $\dfrac{64\pi}{3}$
   - **d.** $\dfrac{256\pi}{3}$

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 siant height 12.
   - **a.** 108π
   - **b.** 189π
   - **c.** $81\pi\sqrt{7}$
   - **d.** 216π