Geometry Practice Test: Surface Area and Volume

Name _

If you would like to ace the test, here is the best method:

- 1. Have the notes that we allow you to use. Don't just count on the notes, though. Be familiar with the formulas, what each letter means, and the proper units (e.g., cm vs. cm² vs. cm³).
- 2. For each problem, write down the given information. Do not just scratch out "3.5, 17, 8", write a useful list such as "Cylinder, height = 3.5 m, diameter = 17 m".
- 3. Instead of making a list, it is quite useful to draw a diagram and label it. This takes practice. Make sure you can make a decent sketch of all the common shapes. This will be a useful skill later in your life when you are trying to show someone a shape that is in your brain.



- 4. Also be sure to write out what you are looking for. If you don't know what you're looking for, you can't choose the correct formula.
- 5. Speaking of which, choose the correct formula, and write it down. Yes. Do it. Write the whole equation, including the equals sign.
- 6. Plug in the variables in the correct places. The thing you're looking for should just be left written as a variable.
- 7. If you find yourself missing a variable, like radius, you may need to look for it more carefully in the problem, or calculate it from something else. Maybe the diameter was in the problem, or you were given the slant height and the height of a cone, and can use the Pythagorean formula to calculate radius.
- 8. Do careful algebra, getting rid of everything next to your variable. Whatever you do to one side of an equation, you must do to the other side. Multiplication and division are done to every term.
- 9. Once you have a number, attach the correct units. Check on the diagram to see if your answer makes sense. Volumes and surface areas are harder to check, and lengths are easier.

Practice Problems – Surface Area and Volume

Show work on separate paper. Round all answers to the nearest tenth. Include units.

- A rectangular box has dimensions 6 inches by 1 foot by 15 inches. Find the volume. (Pay attention to units. Cubic inches are ok, and cubic feet are ok, but nobody uses ft²·in.)
- 2. A rectangular box has dimensions 13 cm by 18 cm by 7 cm. Find the surface area.
- 3. A hexagonal pyramid has a base area of 168 square feet, and a height of 18 feet. Find the volume.
- A tent is in the shape of a triangular prism. The front and back of the tent are isosceles triangles which are 7 feet high and 8 feet wide. The tent is 9 feet long from front to back. Find the volume of the tent.
- 5. Each lateral face of a square pyramid has a base of 34 feet, and a slant height of 28 feet. Find the surface area of the entire pyramid.
- 6. A sphere has a diameter of 16 feet. What is the volume of the sphere?
- 7. A cone has a diameter of 18 cm, and a slant height of 22 cm. Find the volume of the cone.
- 8. A square pyramid has a width of 50 meters, and a height of 32 meters. Find the surface area of the entire pyramid.
- 9. A cone has a height of 14 inches, and a volume of 267 cu. in. Find the radius.
- 10. A cylinder has a height of 7 feet and a volume of 198 cubic feet. Find the surface area of the cylinder.
- 11. A square pyramid has a volume of 2430 ft³, and a height of 21 feet. Find the slant height of the pyramid.
- 12. A cube with a side of 3.00 inches has a 2-inch diameter hole drilled through it directly through the center from front to back. What is the volume and total surface area of the solid? Remember that some surface disappears, and some new surface appears.