**10.5, 6, 7 – Volume of Prisms, Cylinders, Pyramids, Cones, and Spheres** Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – amount of space that a 3-dimensional object takes up

Important to know how much a container will hold

Also tells you how much space is required to store objects

Volume is measured using \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Volume of a Prism:**

Volume of a rectangular prism equals \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ x \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ x \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

For other prisms volume is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ x \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Example 1:** Find the volume of the prism using a formula.



**Example 2:** Find the volume of the cylinder using a formula.



**Volume of a Cylinder:**

**Example 3:** Find the volume of the cylinder using a formula.



**Volume of a Pyramid:**

If you have a pyramid and a prism with the same base area and height, the pyramid has one third the volume of the prism.

You must use the altitude as the height, not the slant height!



**Example 4:** Find the volume.



**Volume of a Cone:**

If you have a cone and a cylinder with the same radius and height, the cone has one third the volume of the cylinder.

**Example 5:** Find the volume of the cone.



**Example 6:** Two cones are similar. The smaller cone has a height of 10 m and a base of with a radius of 6 m. The larger cone has a height of 15 m. What is the volume of the larger cone, in cubic meters?

**Volume of a Sphere:**

The volume of a sphere is four thirds the product of $π$ and the cube of the radius of the sphere.

**Example 7:** Find the volume of the sphere with radius of 6. Leave your answer in terms of $π$.