**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**May 11th, 2012**

**Geometry, Mrs. Sulkes**

**12:3 Cylinders**

**READ THIS SHEET CAREFULLY, THEN ANSWER THE QUESTIONS.**

A **cylinder** is like a prism, but its bases are circles instead of polygons. We will only work with right cylinders. Examples of a cylinder are a Pringles can, a coffee can and a tennis ball can.

**Parts** of a right cylinder:

* Bases – parallel, congruent, circles
* Lateral part – when flattened, shape is a rectangle
* Altitude – height *(h*) of cylinder or perpendicular segment between the two circular bases.

**Surface areas** of a right cylinder:

* **Lateral area** – area of the rectangle formed when the lateral part of a cylinder is flattened.

L.A. = area of a rectangle, so L.A. = bh.

Since b = , or circumference of circle, then :

L.A. = bh = h 

**Lateral Area of a Cylinder:**

**L.A. = **

* **Total area** - sum of the lateral area and the area of the two bases.

**Total Area of a Cylinder:**

**T.A. = L.A. + 2B**

**or**

**T.A. = **

**Volume** of a right cylinder:

**Volume of a Right Cylinder**

**V = Bh**

**or**

**V = **

**Examples**

1. Find the lateral area and total area of a right cylinder with radius 5 and height 10.
2. Find the volume of a right cylinder with radius and height 3.
3. Find the lateral area and total area of a right cylinder with height 12 and volume .
4. The lateral area of a cylinder is . If the radius is 3, find the height.
5. The total area of a cylinder is  and the radius is 3. Find the height of the cylinder and the volume.