Example: Surface Area of a Cylinder

Problem:

Find the surface area of a cylinder with radius 12 inches and height 8 inches.

Solution:

The first step is to draw and label the surfaces of the figure. A cylinder is made up of the top and bottom, which are both circles and the middle section, which is a rectangle. The circles have a radius of 12 inches. The rectangle that makes the middle section has a height of 8 inches and a width that is equal to the circumference of the circle. In this case, the circumference of the circle is 24 pi.

Now that we know what the surfaces are, the next step is to find the area of each surface.

There are two circles, each with an area of pi r squared.

The radius is 12, so the area of each of the circles is 144 pi.

The rectangle has an area equal to the length times the width.

This rectangle has dimensions 8 by 24 pi, so the area is 192 pi.

Now we just need to add the areas together.

There are 2 circles and the rectangle. Be careful here that you include BOTH circles!

The two circles each have an area of 144 pi and the rectangle has an area of 192 pi. Adding these together we get 480 pi.

The last step is to always make sure you label your answers appropriately. In this case, the total surface area is 480 pi inches squared.