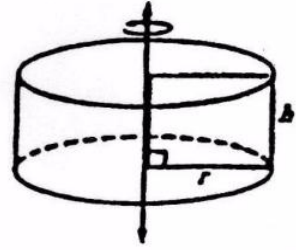


Rotating Rectangles and Triangles

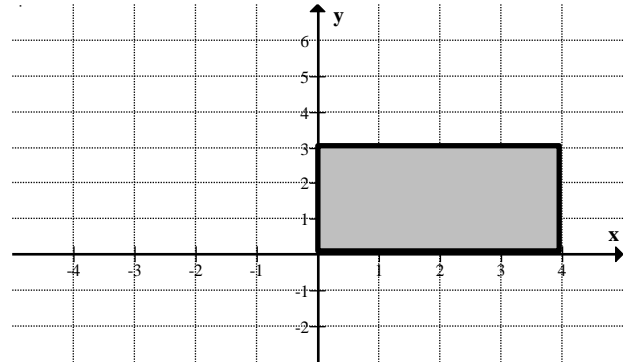
When a rectangle is rotated about an axis, it generates a cylinder.
The volume and surface area of the cylinder depend on the dimensions of the rectangle.



1. Find the radius and height of the cylinder formed when this rectangle is rotated about:

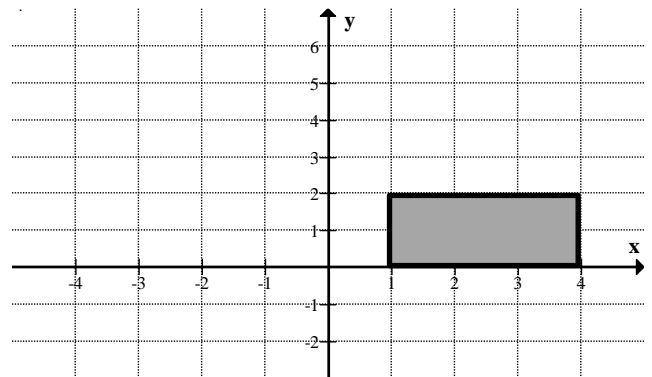
a) The x-axis: $r = \underline{\hspace{2cm}}$ $h = \underline{\hspace{2cm}}$

b) The y-axis: $r = \underline{\hspace{2cm}}$ $h = \underline{\hspace{2cm}}$



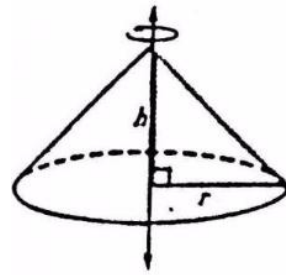
2. Which cylinder will have the greatest volume? Show all work to compare.

3. Describe the solid formed when this rectangle is rotated about the y-axis.



4. Find the volume of the solid to the right.

When this right triangle is rotated about an axis, it generates a cone. The radius and the height of the cone depend on the dimensions of the right triangle and the axis of rotation.

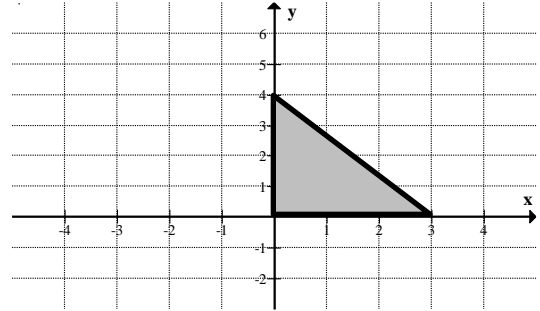


1. Find the radius and height of the cone formed when rotating this triangle about:

a. The x-axis: $r = \underline{\hspace{2cm}}$ $h = \underline{\hspace{2cm}}$

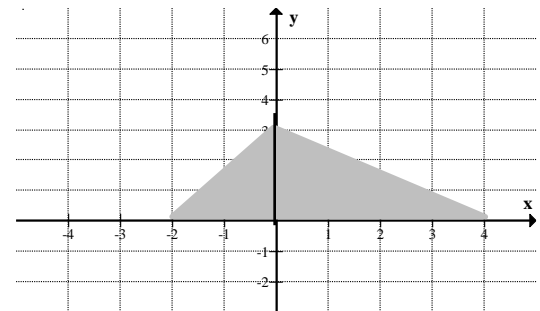
b. The y-axis: $r = \underline{\hspace{2cm}}$ $h = \underline{\hspace{2cm}}$

2. Which cone will have the greater surface area?



3. Describe the solid formed when this triangle is rotated about the x-axis:

4. Find the volume of the solid formed.



Challenge!

5. Describe the solid formed when this triangle is rotated about the y-axis:

6. Use your knowledge of both cylinders and cones to find the volume of the solid formed.

