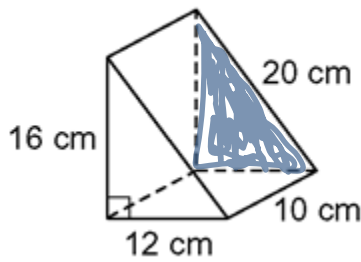


1) Find the volume of the triangular prism.



The first thing I had to do was figure out what part of the shape was the base. Once I saw that this triangular prism was on its side, I shaded the base so that I could understand a little better.

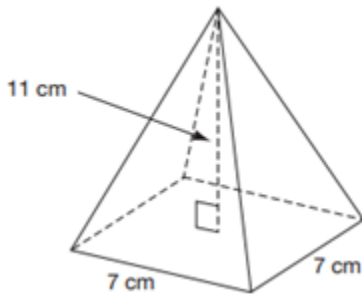
To find the volume of a prism, I need to find the area of the base and multiply that with the prism's height. Since the base is a triangle, I knew that I needed to use $A = \frac{1}{2}bh$ to find the area of the base. I substituted 12 for the length of the base of the triangle and 16 for the height of the triangle. So I got

$$A = \frac{1}{2}(12)(16) \rightarrow A = (6)(16) \rightarrow A = 96 \text{ cm}^2$$

Once I got the area of the triangular base, I needed to multiply by the height of the prism to find the volume.

$$V = \text{Area of Base} * \text{height} = 96 * 10 = 960 \text{ cm}^3$$

2) Find the volume of the square pyramid. Round your answer to the nearest hundredth.



To find the volume of a pyramid, I needed to use

$$V = \frac{1}{3} \text{Area of the Base} * \text{height}$$

The base is a square so to find the area I needed to do

$$A = s^2 = 7^2 = 49 \text{ cm}.$$

Once I had the area of the base, I just substituted the prism's height of 11 cm into the volume formula along with the area of the base.

$$V = \frac{1}{3} \text{Area of the Base} * \text{height}$$

$$V = \frac{1}{3} (49) * 11 \approx 179.67 \text{ cm}^3$$

3) Find the height of a cylinder with a volume of 500 yd³ and a radius of 8 yd. Round your answer to the nearest hundredth.

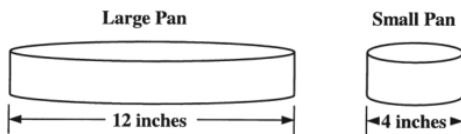
The formula for the volume of a cylinder is: $V = \pi r^2 h$.

Since I'd been given the radius and the volume, I substituted into the formula to solve for the height.

$$\begin{aligned} V &= \pi r^2 h \\ 500 &= \pi 8^2 h \\ 500 &= 64\pi h \\ \frac{500}{64\pi} &= \frac{64\pi h}{64\pi} \\ 2.49 \text{ yd.} &\approx h \end{aligned}$$

4) Mrs. Olivares' consumer science class is making two different-size cheesecakes for a fundraiser.

- The large cheesecake pan has a diameter of 12 inches
- The small cheesecake pan has a diameter of 4 inches



If the pans are both 3 inches deep, how many times greater is the volume of the large pan than that of the small pan?

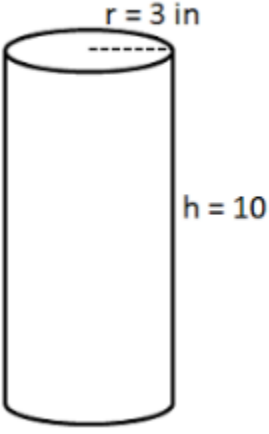
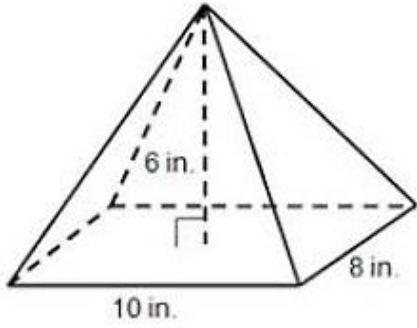
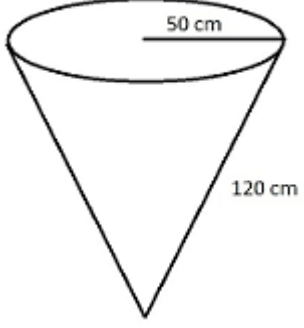
The formula for volume of a cylinder is $V = \pi r^2 h$. I know the height of each of the two cylinders because height here is the same thing as depth, but I still need to find the radii. Since the diameter is given, I know the radius will be half that length. Therefore, the large radius is 6 in. and the small radius is 2 in. From there, I plug the information into the volume formula for each of the two pans.

Large Pan	Small Pan
$V = \pi(6)^2(3)$	$V = \pi(2)^2(3)$
$V = \pi(36)(3)$	$V = \pi(4)(3)$
$V = \pi(108)$	$V = \pi(12)$

In order to determine how many times greater the volume of the large pan is to the small pan, I divide the volume of the large pan by the volume of the small pan: $\frac{\pi(108)}{\pi(12)}$. The π s cancel out leaving me with 9.

Therefore, the large pan is 9 times greater than the small pan. The shortcut would be to notice that the radius is 3 times bigger and if you square it you would get 9.

1. Find the volume of each of the following. Show your work. Round to the nearest hundredth when needed.

<p>a)</p>  <p>A cylinder is shown with a radius of $r = 3$ in and a height of $h = 10$.</p>	<p>b)</p>  <p>A rectangular pyramid is shown with a base of 10 in by 8 in and a height of 6 in.</p>	<p>c)</p>  <p>An inverted cone is shown with a radius of 50 cm and a slant height of 120 cm.</p>
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2. Find the height of a square pyramid with a volume of 650 in^3 and a base side length of 5 in. Show your work.

3. How much larger is the volume of a cylinder than the volume of a cone if they both have a radius of 1 in. and a height of 4 in.? Show your work or explain your reasoning.