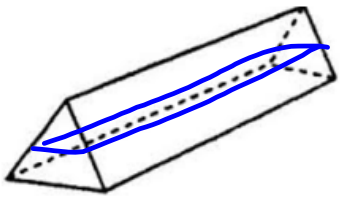
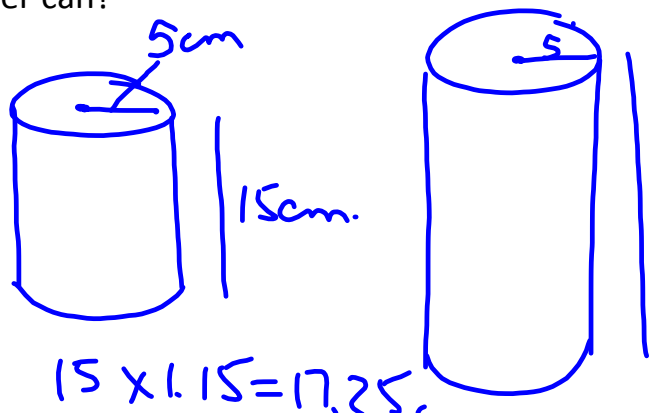
1. What shapes can be created by a horizontal, vertical, or angled cut with a triangular prism



1. Triangle
2 Right triangle
3 rectangle
4 Trapezoid

2. A cylindrical can of baked potato chips has a height of 15 centimeters and a radius of 5 centimeters. A new can is advertised as being 15% larger than the regular can. If both cans have the same radius, what is the height of the larger can?

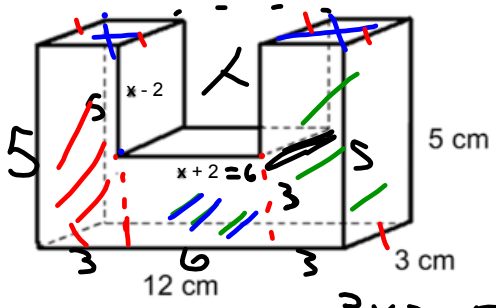


(1) $15 \times 1.15 = 17.25$ cm.

(2) $15 \times .15 = 2.25$
$+ 15$
17.25cm.

(3) $V = 5^2 \cdot \pi \cdot 15$
≈ 1177.5 cm^3
$1177.5 \times .15 = 176.625$
$+ 1177.5$
1354.125
$\pi \cdot 5^2 \cdot X = 1354.125$

3. Solve for x so that the volume of the U-shaped rectangular structure is equal to 144 cm^3. Show work for full credit



$V = l \cdot w \cdot h$

45

$3 \times 3 \times 5$

45

① $(6 \cdot 3) \cdot h = 144 - 90 = 54$

② $12 \times 3 \times 5 = 180$

$3(x+2)(x-2) - 144$

$3(x^2 - 4) = 36$

$3x^2 - 12 = 36$

$3x^2 = 48 \quad x = 4$

$x^2 = 16$

4. Parents are throwing their boy a fabulous Spiderman-themed birthday party. They are creating a balloon archway with the red and blue Spiderman colors. The archway will contain 250 balloons, each holding 1.4 liters of helium. Each balloon has a mass of .024 grams when empty, and all the string and fixings that hold the balloons together total another 35 grams. If helium has a density of 0.1674 grams per liter, what is the mass of the entire archway?

$D = \frac{m}{V}$

$.1674 = \frac{m}{1.4}$

or

$.2343 = m(1\text{ balloon})$

$.1674(.4) + .1674$

$.23436(250) = 58.59$

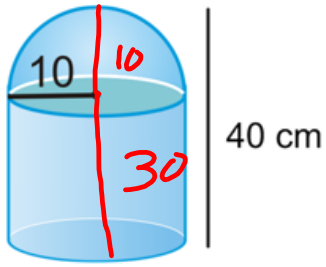
$250(.024) = +6.00$

64.59

Extra $+35$

$99.59\ g$

5. You are making a special birdhouse for the squirrels in your backyard, yes for the squirrels. If the total height of the birdhouse is 40 cm and the radius is 10 cm, what is the volume of the birdhouse in terms of π?

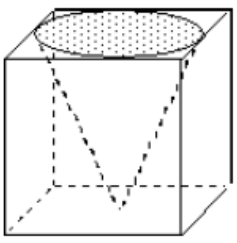


$V = \frac{11000\pi}{3}\ cm^3$

$\frac{2}{3}\pi 10^3 + \pi 10^2 \cdot 30$

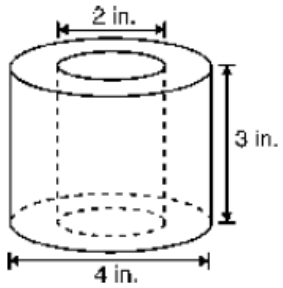
$\frac{2000\pi}{3} + 3000\pi =$

6. Students are making special pencil holders for their desks. They have two choices when picking their designs. They can choose from a square prism with side lengths of 8 in with a the center cut out, or a cylinder with the center cut out.



What is the volume of this figure?

$377.959\ in^3$



What is the volume of this figure?

~~$9.43\ in^3$~~

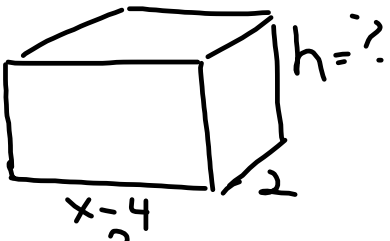
$28.26\ in^3$

If students wanted to have the most room for their pencils, which pencil holder should they choose. Explain your reasoning.

$2^2 \cdot \pi 3 - 1^2\pi \cdot 3$

$12\pi - 3\pi = 9\pi$

7. The volume of a rectangular prism is $4x^2 - 10x - 24$. The length of the prism is defined as $(x - 4)$ and the width is 2 un. What is the height of the prism?



$V = 4x^2 - 10x - 24$

$(x-4) \cdot 2 \cdot (h) = \frac{4x^2 - 10x - 24}{2}$

$(x-4)(2x+3) = 2x^2 - 5x - 12$

$(x-4) \cdot 2 \cdot (2x+3)$

$\ell \quad w \quad h$