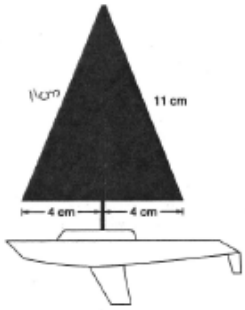
Toy Sailboats

Emelina makes toy sailboats as shown below.



$a^2 = c^2 - b^2$
$a^2 = 11^2 - 4^2$
$a^2 = 121 - 16$
$a^2 = \sqrt{105}$
$a \doteq 10$

Determine the total area of the shaded sails.

Show your work.

$\frac{bh}{2} + \frac{bh}{2}$

$\frac{4(10)}{2} + \frac{4(10)}{2}$

$\frac{40}{2} + \frac{40}{2}$

$20 + 20$

$40cm^2$

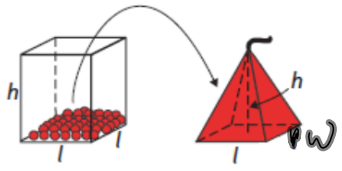
The total area of the shaded sails is $40cm^2$

Annotation:
Student demonstrates a thorough understanding of the concepts; provides calculation for height that applies the Pythagorean Theorem correctly and uses this value accurately to determine required area.

8.5 - Volume of Pyramids and Cones

The volume of a pyramid is 1/3 the volume of a prism with an identical base and height.

http://download.elearningontario.ca/repository/1107210000/MPM1DCU05A05/mme/U5A5_volume_of_pyramids_cones_and_spheres/VolumeOfPyramidsAndCones.html



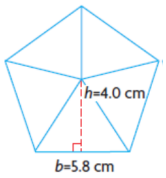
The formula for the volume of a pyramid is $V = \frac{1}{3}Ah$, where A is the area of its base and h is the height.

$V_{pyramid} = (A_{base} \times h) \div 3$

$V_{prism} = A_{base} \times h$

Example One

Calculate the volume of a pyramid with the height of 8.1 cm and the base dimensions as shown.



$V_{pyramid} = (A_{base} \times h) \div 3$

1. Calculate area of base

$A = [(b \times h) \div 2] \times 5$

$= [(5.8 \times 4) \div 2] \times 5$

$= 58 cm^2$

2. Calculate volume of pyramid

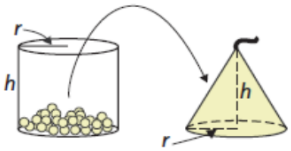
$V = (A_{base} \times h) \div 3$

$= (58 \times 8.1) \div 3$

$= 156.6 cm^3$

The volume of a cone is 1/3 the volume of a cylinder with an identical base and height.

http://download.elearningontario.ca/repository/1107210000/MPM1DCU05A05/mme/U5A5_volume_of_pyramids_cones_and_spheres/VolumeOfPyramidsAndCones.html



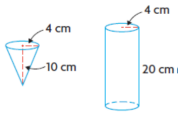
The formula for the volume of a cone is $V = \frac{1}{3}\pi r^2 h$ where r is the radius of its base and h is its height.

$V_{cone} = (\pi r^2 h) \div 3$

$V_{cylinder} = (\pi r^2 h)$

Example Two

A conical paper cup has a radius of 4 cm and a height of 10 cm. A cylindrical glass has a radius of 4 cm and a height of 20 cm. How many times do you need to fill the paper cup and pour it into the glass to fill the glass?



1. Volume of a Cone

$V = (\pi r^2 h) \div 3$

$= (\pi 4^2 10) \div 3$

$= 167.5\ cm^3$

2. Volume of a Cylinder

$V = \pi r^2 h$

$= \pi (4)^2 20$

$= 1005.3 cm^3$

3. Number of Cones

$\#\ of\ cones = V_{cylinder} \div V_{cone}$

$= 1005.3 \div 167.5$

$\div 6\ cones$

Complete: p. 464 - 465 #1 - 3, 6, 7.