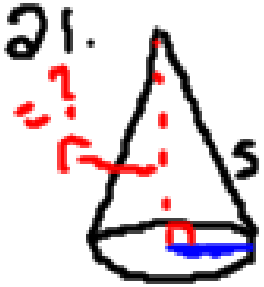
HWP monday
- surface area - 1.4
- volume - 1.5

$2x + 3 = 5$
$-3 \quad -3$
$\frac{2x}{2} = \frac{2}{2}$

Hw Review.

① find slant height
② Pythagorean Theorem to find height

21.



SA = 258 cm²

r = 4cm

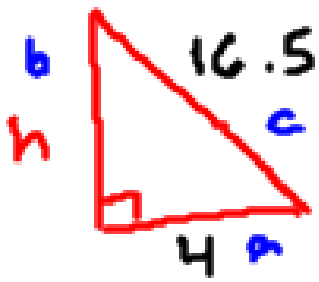
$SA = \pi r^2 + \pi r s$

$258 = \pi(4)^2 + \pi(4)s$

$258 = 16\pi + 4\pi s$
$-16\pi \quad -16\pi$

$\frac{207.734}{4\pi} = \frac{4\pi s}{4\pi}$

$s = 16.53$ cm



$c^2 = a^2 + b^2$
$c^2 - a^2 = h^2$
$(16.53)^2 - (4)^2 = h^2$

$\sqrt{h^2} = \sqrt{257.24}$
$h = 16.0$ cm

16a.

$d = 48\,mm$

$SA = 7012\,mm^2$

$r = \frac{d}{2} = \frac{48}{2} = 24\,mm$

* $SA = \pi r^2 + \pi r s$

* $7012 = \pi(24)^2 + \pi(24)s$

$7012 = 576\pi + 24\pi s$

$-576\pi \quad -576\pi$

$\frac{5202.44}{24\pi} = \frac{24\pi s}{24\pi}$

$68.99_{mm} = s$

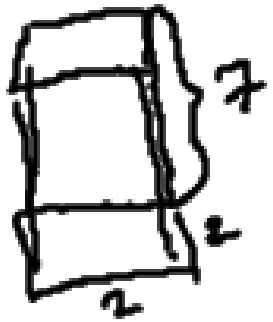
$69.0\,mm = s$

cubic units

cm^3, in^3, ft^3, etc.....

1.5 Volumes of Right Pyramids and Right Cones

Volume - the amount of space that an object (or substance) occupies



$SA: 2(\square^2) + 4(\square 7)$

$x \cdot x \cdot x$

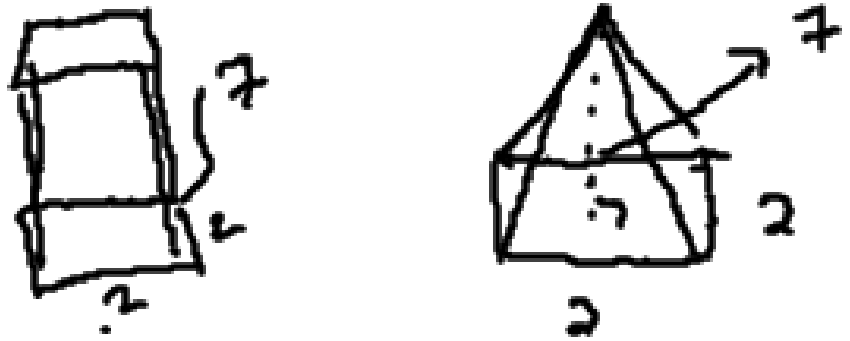
x^3

Prisms

$V = (\text{area of base}) \times h$

$V = (2 \cdot 2) \cdot 7$

$V = 28 \text{ unit}^3$



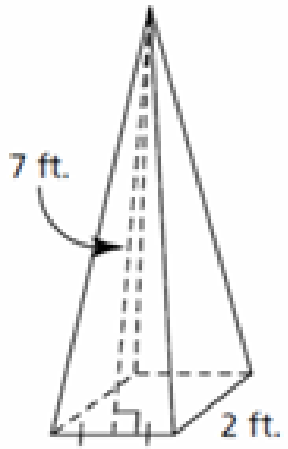
A pyramid is $\frac{1}{3}$ of the volume of its corresponding prism.

$V_{prism} = 28 \text{ units}^3$

$V_{pyr} = \frac{1}{3} \times (\text{area of base}) \times h$

$V_{pyr} = \frac{1}{3} \cdot (2 \cdot 2) \cdot 7 = \frac{1}{3}(28) = \frac{28}{3} = 9.33\ldots \text{ units}^3$

1. Calculate the volume of this right square pyramid to the nearest cubic foot.



* $V = \frac{1}{3} \times (\text{area of base}) \times h$

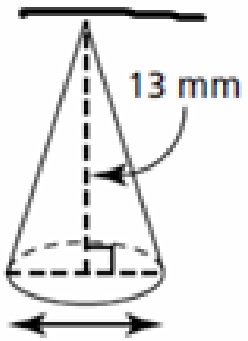
$V = \frac{1}{3} \cdot (l \cdot w) \cdot h$

$V = \frac{1}{3} (2 \cdot 2) \cdot 7$

$V = 9.33.... \text{ ft}^3$

$\boxed{V = 9 \text{ ft}^3}$

3. Determine the volume of this cone to the nearest cubic millimetre.



$d = 8$ mm

$r = 4$ mm

πr^2

$V = \frac{1}{3}(\text{area of base}) \times h$

$V = \frac{1}{3} \cdot (\pi r^2) \cdot h$

$V = \frac{1}{3}(\pi(4)^2) \cdot 13$

$V = \frac{16 \cdot \pi \cdot 13}{3}$

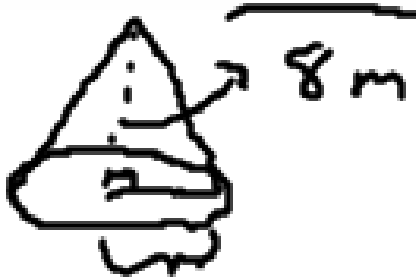
$V = 217.82 \text{ mm}^3$

$V = 218 \text{ mm}^3$

$$V = \frac{(\text{area of base}) \times h}{3}$$

4. A cone has a height of 8 m and a volume of 300 m^3. Determine the radius of the base of the cone to the nearest metre.

$$V = \frac{\pi r^2 \cdot h}{3}$$



$$V = 300\,m^3 = \frac{\pi r^2 h}{3}$$

$$(3)\,300 = \frac{\pi r^2 (8)}{3}(3)$$

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$$\frac{900}{8\pi} = \frac{\pi r^2 8}{8\pi}$$

$$\sqrt{35.81} = \sqrt{r^2}$$

$5.98\ m = r = 6\ m$