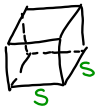
Volume



$486 = 6s^2$

$\sqrt{81} = \sqrt{s^2}$

$6s^2$ $s = 9$ in

Volume—the amount of space contained inside a solid

- Measured in cubic units: in^3, ft^3, yd^3, cm^3, m^3

Volume Congruence Postulate

Congruent polyhedra have the same volume.

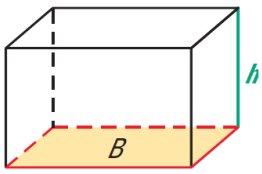
Volume Addition Postulate

The volume of a solid is the sum of the volumes of all its nonoverlapping parts.

Volume of a Prism

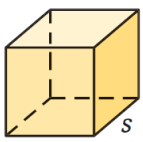
$V = Bh$

B–area of the base
h–height

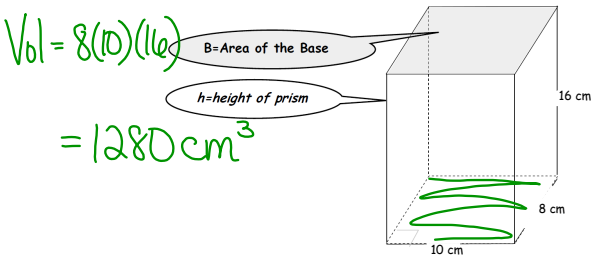


Volume of a Cube

$V = s^3$



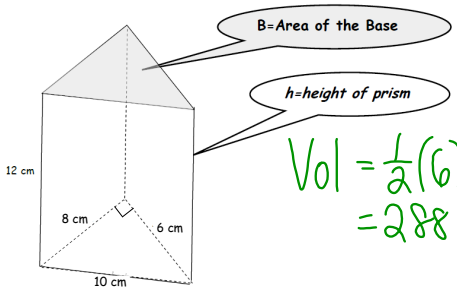
Find the volume of the prism.



$Vol = 8(10)(16)$

$= 1280\ cm^3$

Find the volume of the prism.

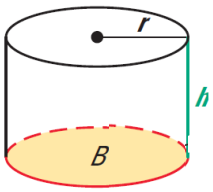


$Vol = \frac{1}{2}(6)(8)(12)$

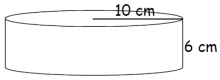
$= 288\ cm^3$

Volume of a Cylinder

$V = \pi r^2 h$

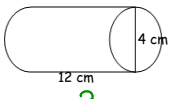


Find the volume of the cylinder.



$V = \pi(10)^2(6)$

$= 600\pi\ cm^3$



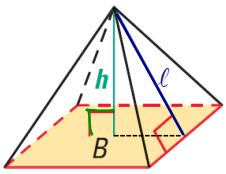
$V = \pi(4)^2(12)$

$= 48\pi\ cm^3$

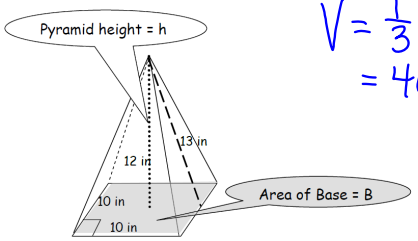
Volume of a Pyramid

$$V = \frac{1}{3}Bh$$

B–area of the base
h–height



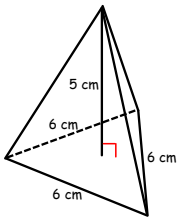
Find the volume of the pyramid.



$V = \frac{1}{3}(10)(10)(12)$
$= 400 \text{ in}^3$

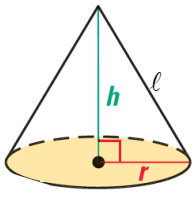
Find the volume of the pyramid.

$V = \frac{1}{3}\left[\frac{1}{4}(6)^2\sqrt{3}\right](5)$
$= 15\sqrt{3}\text{ cm}^3$



Volume of a Cone

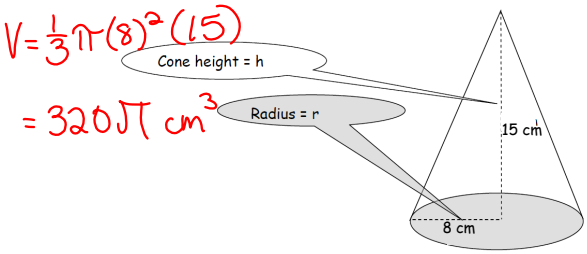
$$V = \frac{1}{3}\pi r^2 h$$



Find the volume of the cone.

$V = \frac{1}{3}\pi(8)^2(15)$

$= 320\pi \text{ cm}^3$



Volume of a Sphere

$$V = \frac{4}{3}\pi r^3$$

Find the volume of a sphere with a radius of 12 cm.

$V = \frac{4}{3}\pi(12)^3$

$= 2304\pi \text{ cm}^3$

$904.78 \div \left(\frac{4}{3}\pi\right)$

Find the radius of a sphere with a volume of 904.78 ft^3.

$\frac{904.78}{\left(\frac{4}{3}\pi\right)} = \frac{\frac{4}{3}\pi r^3}{\frac{4}{3}\pi}$

$\sqrt[3]{r^3} = \sqrt[3]{216}$

$r = 6 \text{ ft}$

Conclusion

1. **What is the difference in SA and Volume?**
2. **Any questions over any of the formulas?**
3. **Will you get to use your formulas on the test?**
4. **Questions?**

Assignment

Volume Wkst 1