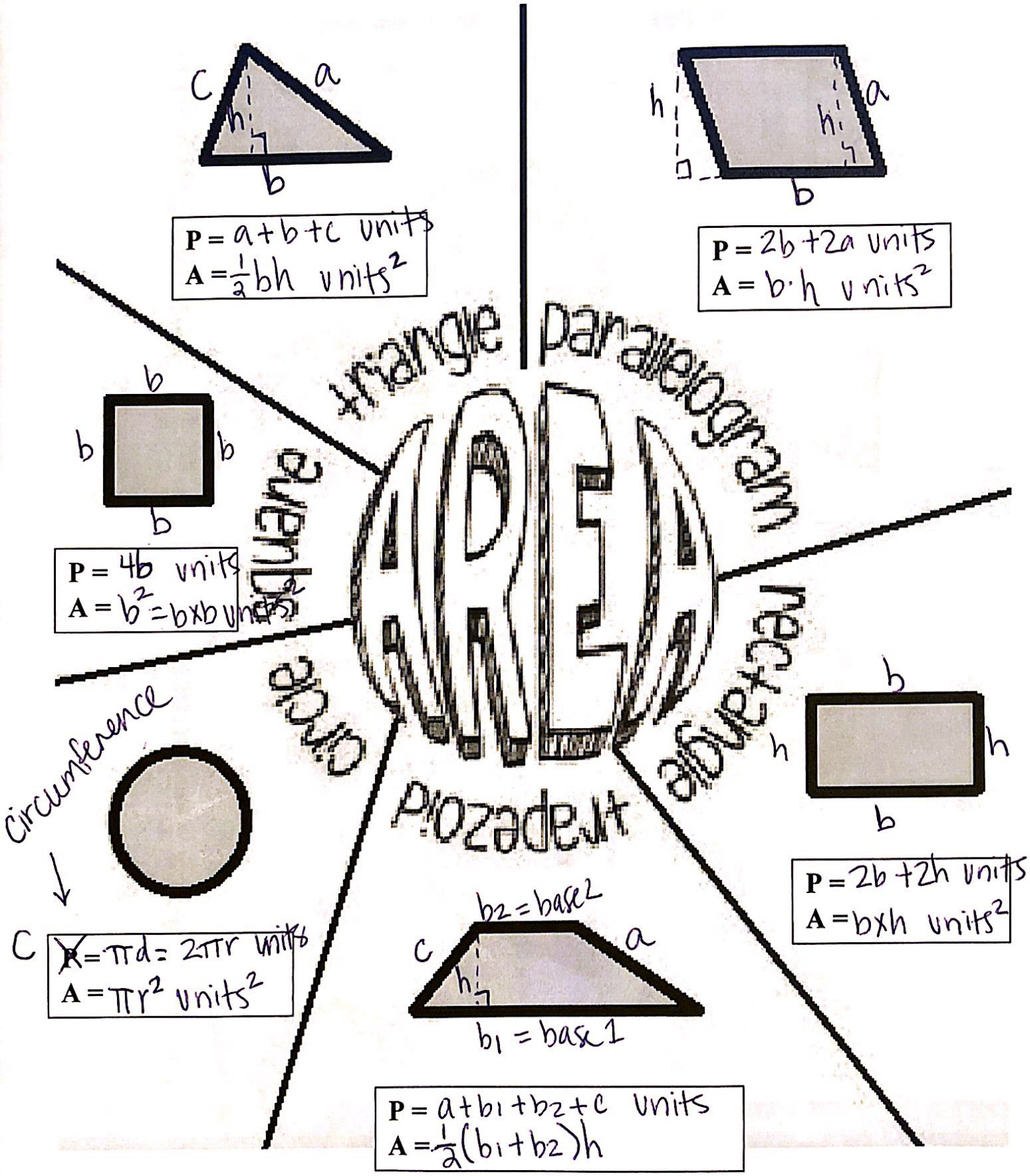
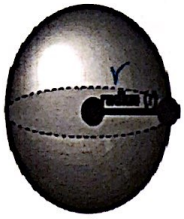
(sum of all sides)

Perimeter & Area Formulas

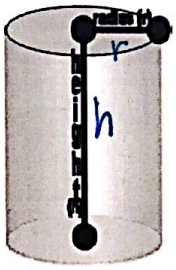


Surface Area Formulas

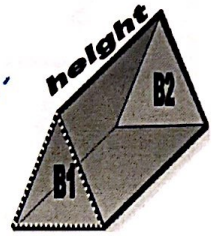
SA= $4\pi r^2$



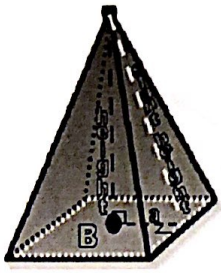
SA= $2\pi rh + 2\pi r^2$



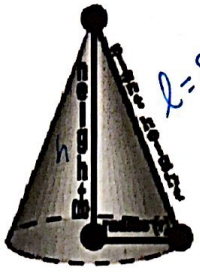
SA= Check Notes.



SA= Check Notes



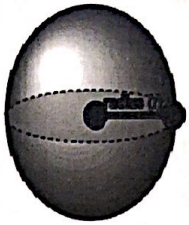
SA= $\pi r^2 + \pi r l$



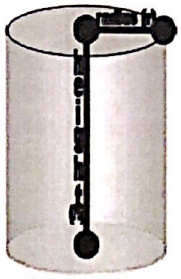
l = slant height

Volume Formulas

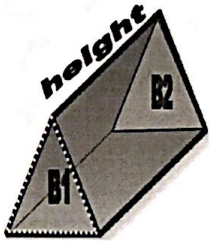
V= $\frac{3}{4}\pi r^3$



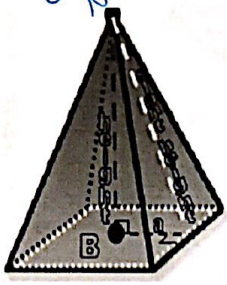
V= $\pi r^2 h$



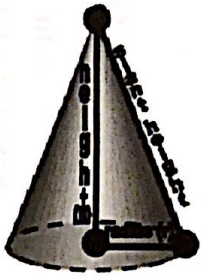
V= Check Notes



V= Check Notes



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



Volume = units^3

UNIT 3 DAY 2 VOLUME AND SURFACE AREA

Prisms: $V = Bh$

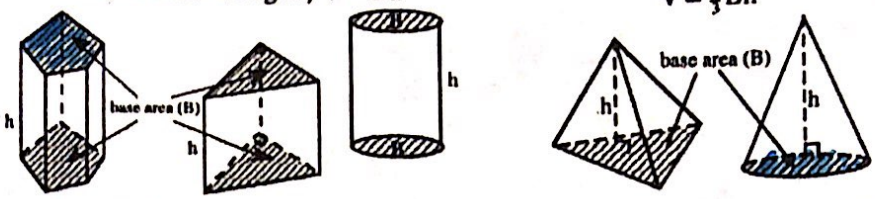
Pyramids: $V = \frac{1}{3}Bh$

VOLUME AND SURFACE AREA OF POLYHEDRA #17

The **VOLUME** of various polyhedra, that is, the number of cubic units needed to fill each one, is found by using the formulas below.

for prisms and cylinders
$V =$ base area $\times$ height , $V = Bh$

for pyramids and cones
$V = \frac{1}{3}Bh$



In prisms and cylinders, you may use either base, since they are congruent. Since the bases of cylinders and cones are circles, their area formulas may be expressed as: cylinder $V = \pi r^2 h$ and cone $V = \frac{1}{3}\pi r^2 h$

The **SURFACE AREA** of a polyhedron is the sum of the areas of its base(s) and faces.

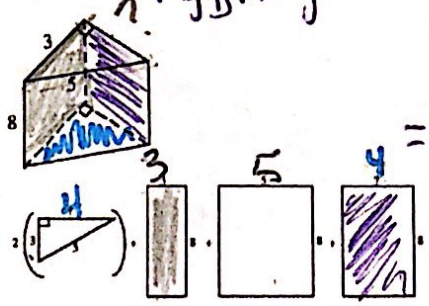
B = area of base

Surface Area: Breaking it down. What is the surface area of the triangular prism?

hypo

Pythagorean Thm: $a^2 + b^2 = c^2$

$3^2 + b^2 = 5^2$



$= 2\left(\frac{1}{2}(3)(4)\right) + (3 \cdot 8) + (5 \cdot 8) + (4 \cdot 8)$

$= 12 + 24 + 40 + 32$

$= 108$ units^2

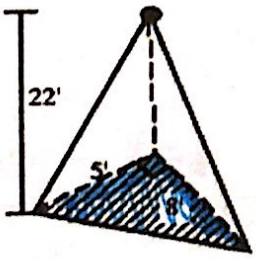
Find the volume and surface area for the following:

$l^2 = 18^2 + 8^2$

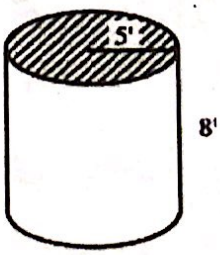
$\sqrt{l^2} = \sqrt{388}$

$l = 19.7$

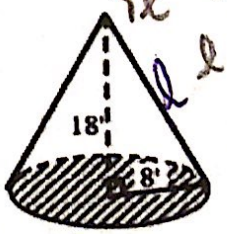
a)



b)



c)



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

$\frac{1}{3}\left(\frac{1}{2}(5)(8)\right)(22)$

$= 146.67$ units^3

$V = \pi r^2 h$

$V = \pi(5)^2(8)$

$V = 628.32$ units^3

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

$= 2(\pi)(5)(8) + 2\pi(5)^2$

$= 408.41$ units^2

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

$V = \frac{1}{3}\pi(8)^2(18)$

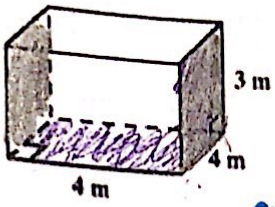
$V = 1206.37$ units^3

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

$SA = \pi(8)^2 + \pi(8)(19.7)$

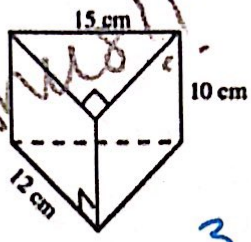
$SA = 696.18$ units^2

You Try: Find the Volume and Surface Area of the following shapes.



V: $(4\times4)3 = 48m^3$

SA: $4(4\times4) + 2(4\times3) = 88m^2$

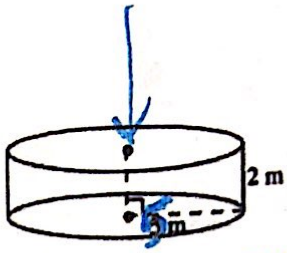


V: $540cm^3$

SA: $468\ cm^2$

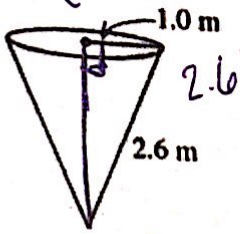
radius

5m



V: $157.08m^3$

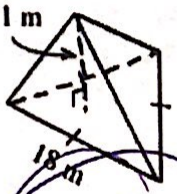
SA: $219.91m^2$



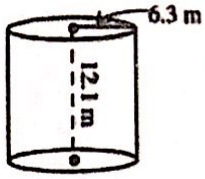
$2.6^2 = 1^2 + b^2$

V: $11.31m^2$

SA: $7.54m^3$



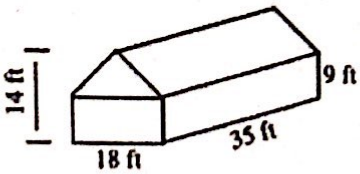
SKIP



V: $1508.75\ m^3$

SA: $288.96\ m^2$

Find the volume of the solid shown.



Find the volume of the remaining solid after a hole with a diameter of mm is drilled through it.