Name: _____ Date: _____

10-1E Volume Notes: Pyramids

Volume - the space a three-dimensional figure occupies *units cubed

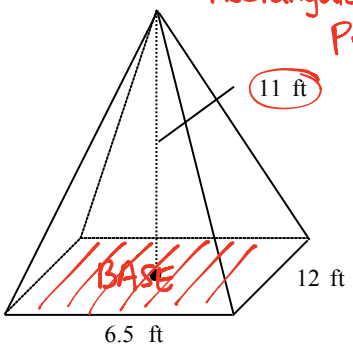
For **Pyramids** one base across from apex, lateral faces are triangles

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

B: area of base shape
h: height of pyramid (distance from apex to base)

Ex. 1: Find the volume of each pyramid. Round to the nearest tenth if necessary.

A. Rectangular Pyramid



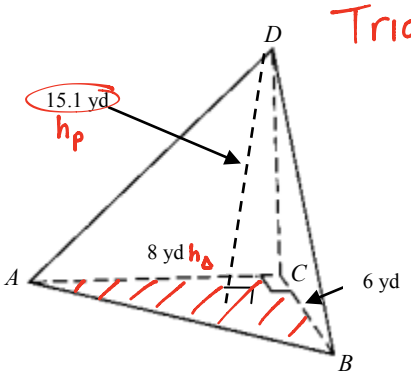
$V = \frac{Bh}{3}$ (B = area of rectangle)

$= \frac{(\ell w)h}{3}$

$= \frac{(6.5)(12)(11)}{3}$

$V = 286 \text{ ft}^3$

B. Triangular Pyramid



$V = \frac{Bh}{3}$ (B = area of triangle)

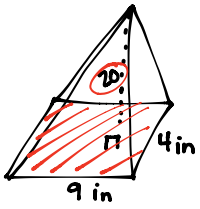
$= \frac{(\frac{1}{2}bh_\Delta)h_p}{3}$

$= \frac{(\frac{1}{2})(6)(8)(15.1)}{3}$

$= \frac{24(15.1)}{3}$

$V = 120.8 \text{ yd}^3$

Ex. 2: Find the volume of a pyramid that has a height of 20 inches with a rectangular base with a length of 4 inches and a width of 9 inches.



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

$= \frac{(9)(4)(20)}{3}$

$V = 240 \text{ in}^3$

Ex. 3: A triangular pyramid has a volume of 60 cubic centimeters. The triangular base has a 12-centimeter base and a 5 centimeter height. Find the height of the pyramid.

$V = 60 \text{ cm}^3$
$b = 12 \text{ cm}$
$h_\Delta = 5 \text{ cm}$
$h = ?$

$V = \frac{Bh}{3} = \frac{(\frac{1}{2}bh_\Delta)h}{3}$

$60 = \frac{(\frac{1}{2})(12)(5)h}{3}$

$60 = \frac{30h}{3}$

$\frac{60}{10} = \frac{10h}{10}$

$h = 6 \text{ cm}$

KEY TIPS:

1) Circle (height of figure)
2) Shade (bases)
3) Name (figure using the shape of the base)
4) Write basic formula for 3-D figure
5) Write specific formula (according to base)
6) Substitute values
7) Calculate
8) Check units/rounding

HW: 10-1E Skills & Homework Practice Worksheet