Name: _____ Date: _____

10-2E Surface Area of Pyramids

*units squared

Surface Area - Sum of all the areas of the surfaces (faces) of a 3-D figure.

For **Rectangular Pyramids**

$SA = B + \frac{1}{2}Pl_s$

B = area of base
P = perimeter of base
l_s = slant height

height on the side of figure (height of triangular face)

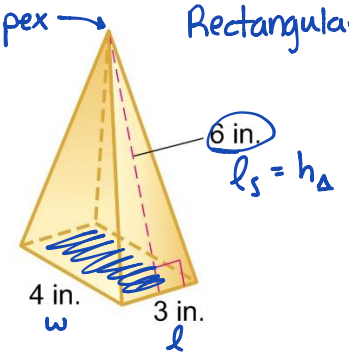
For **Triangular Pyramids**

$SA = B + \frac{1}{2}Pl_s$

*formulas only work with an equilateral base

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

A. apex → Rectangular Pyramid



B →

$SA = A_\square + 2A_{\Delta_2} + 2A_{\Delta_3}$

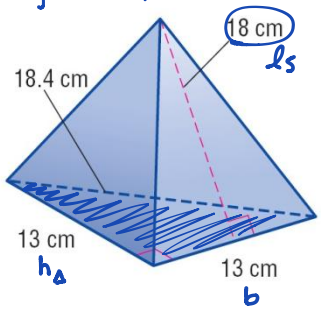
$SA = lw + 2\left(\frac{bh_\Delta}{2}\right) + 2\left(\frac{bh_\Delta}{2}\right)$

$SA = 3(4) + (3)(6) + (4)(6)$

$SA = 12 + 18 + 24$

$SA = 54\ in^2$

B. Triangular Pyramid



$SA = B + 2A_{\Delta_2} + A_{\Delta_3}$

$SA = \frac{bh}{2} + 2\left(\frac{bh}{2}\right) + \frac{bh}{2}$

$SA = \frac{13(13)}{2} + 13(18) + \frac{18(18.4)}{2}$

$SA = 84.5 + 234 + 165.6$

$SA = 484.1\ cm^2$

Ex. 2: A game piece for a board game is shaped like a square pyramid. It has a slant height of 15 millimeters and the bases have edges 11 millimeters long. What is the surface area of the game piece?

Square Pyramid

$SA = B + \frac{1}{2}Pl_s$

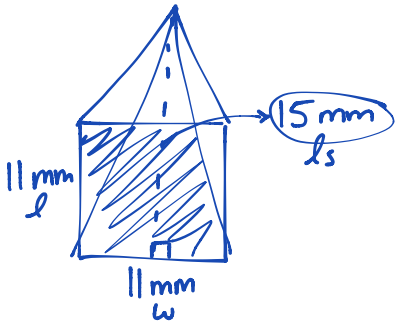
$SA = lw + \frac{1}{2}(s \cdot 4)l_s$

$SA = (11)(11) + \frac{1}{2}(11)(4)(15)$

$SA = 121 + \frac{1}{2}(44)(15)$

$SA = 121 + 330$

$SA = 451\ mm^2$



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