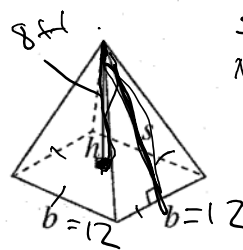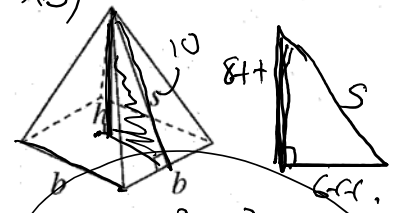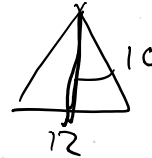# 1.4 SA

Monday, September 26, 2016 3:21 PM

Finding SA of a pyramid when you DON'T know SLANT HEIGHTS (harder)

Ex2) A right pyramid has a square base with 12-foot sides and a height of 8ft. Calculate the surface area of the pyramid to the nearest square foot.

$SA = base + 4 sides (\triangle)$
Need 's'
$\rightarrow$ Pythagoras.

8ft   b=12   b=12

10   8ft   S

$a^2 + b^2 = s^2$
$8^2 + 6^2 = s^2$
$64 + 36 = s^2$
$\sqrt{100} = \sqrt{s^2}$
$10 = s$

10   12   b   b   6ff.

① $A_\triangle = \dfrac{b \cdot s}{2}$

$= \dfrac{12 \cdot 10}{2}$

$= 60 ft^2 \times 4$
$= 240 ft^2$

② $A_{base} = 12 \times 12$
$= 144$

$SA_{Total} = 240 + 144$
$= 384 ft^2$

Some handy formulas (USE WITH CAUTION!)

Warning! Must be a SQUARE base!

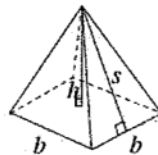1 There's a special formula if the base is a square *(on the formula sheet)*

We did = $A_{base} = \ell \times w$
$= b \times b$
$= b^2$

$A_\triangle = \dfrac{1}{2} bs$
$= \dfrac{1}{2} bs (4) = 2bs$

$2bs + b^2$

Square-Based Pyramid	
	$A_{triangle} = \dfrac{1}{2} bs$ (for each triangle)
	$A_{base} = b^2$
	$SA = 2bs + b^2$

Warning! Not on formula sheet!

2 If you have a REGULAR Polygon Base (sides of same length such as square, regular pentagon, etc.) then you can use this formula:

$$SA = \dfrac{1}{2}(\text{slant height})(\text{perimeter of base}) + (\text{area of base})$$

$$SA = \dfrac{1}{2}s(P_B) + A_B$$

Assignment: p.34 # 4, 9, 10, 13

Assignment: p.34 # 5, 7, 10, 15

Homework check Monday