9.5 Surface Area of Space Figures

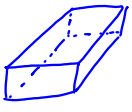
Surface Area - Sum of the areas of all the faces of a space figure

Types of space figure aides in finding the S.A.

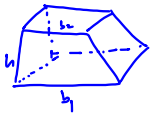
Prism
Cylinder
Pyramid

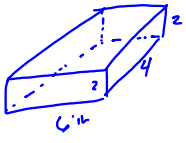
Prism - A space figure that has two congruent parallel bases

S.A. = top + bottom + left + right + front + back
= Area of the bases + Area of the faces



Rect = $b \cdot h$
Tri = $\frac{1}{2} b \cdot h$
Trap = $\frac{1}{2}(b_1 + b_2) \cdot h$





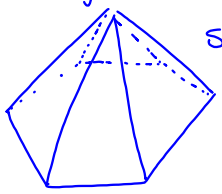
Area of bases + Area of faces
$2(24) + 2(12) + 2(8)$
$48 + 24 + 16$
88 in^2

Cylinder - has two congruent parallel bases that are circles

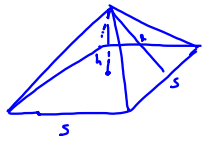
SA = Area of bases + Area of faces
$SA = 2\pi r^2 + \pi d h$
$= 2\pi r^2 + 2\pi r h$
$= 2\pi 3^2 + 2\pi (3)(16)$
$= 18\pi + 96\pi$
$= 54\pi = 169.56 \text{ in}^2$

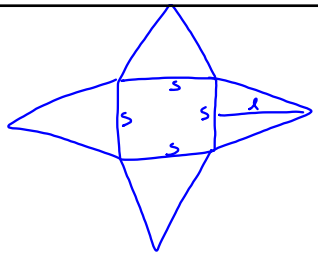
Prycmid – One base
faces are triangles

SA = Base + Area of faces

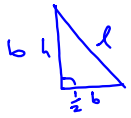


Rectangles
Squares
Triangles

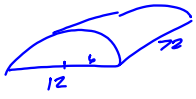




$s^2 + (\frac{1}{2} s l) 4$



$h^2 + (\frac{1}{2}b)^2 = l^2$



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

$= 72\pi + 864\pi$

$= 936\pi / 2$

$= 468\pi = 1469.5 in^2$