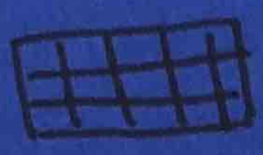
Volume - the amount of space (cubes) in a 3-D figure

units^3

Area (2-D)

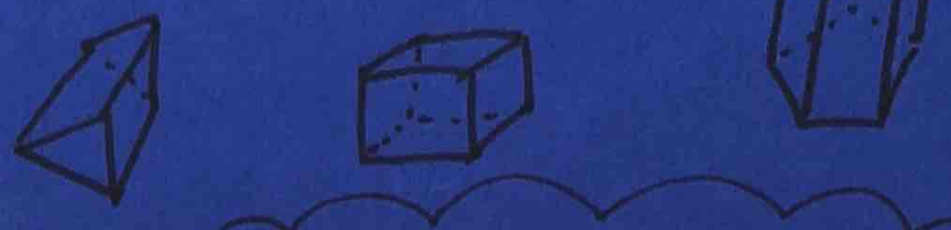


units^2

Volume (3-D)

units^3

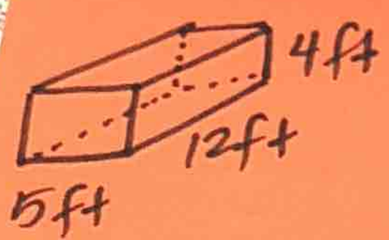
Prisms - all faces (besides the base(s)) are rectangles



$V = B \cdot h$

- B: area of the base (can only be 1 or 2)
- h: height of whole figure

Rectangular Prism:



$B_{\square} = b \cdot h$
$= (5)(12)$
$= 60$

$V = B \cdot h$
$V = (60)(4)$
$\boxed{V = 240\ ft^3}$

Triangular Prism:

$B_{\triangle} = \frac{1}{2}bh$
$= \frac{1}{2}(6)(5)$
$= 15$

$V = B \cdot h$
$V = (15)(11)$
$\boxed{V = 165\ ft^3}$

Real-Life Application:

Bag A Bag B

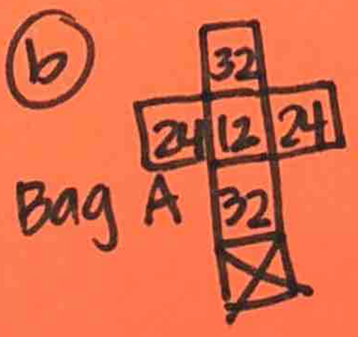
ⓐ $V = 96\ in^3$ (Both) what is the height of each bag?

ⓑ which bag uses less paper?

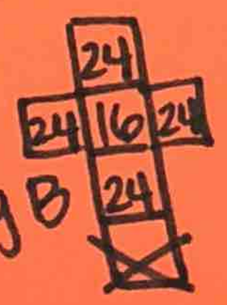
ⓐ $V_A = B \cdot h$
$96 = (4 \cdot 3)h$
$\frac{96}{12} = \frac{12h}{12}$
$\boxed{h = 8\ in}$

$V_B = B \cdot h$
$96 = (4 \cdot 4)h$
$\frac{96}{16} = \frac{16h}{16}$
$\boxed{h = 6\ in}$

ⓑ



Bag A



Bag B

$SA_A = 2(24) + 2(32) + 12$
$= 124\ in^2$

$SA_B = 4(24) + 16$
$= 112\ in^2$

$\boxed{\text{Bag B uses less paper.}}$

9.4 Volume of Prisms