M8 - 7.1 - Quadrilateral Volume Notes
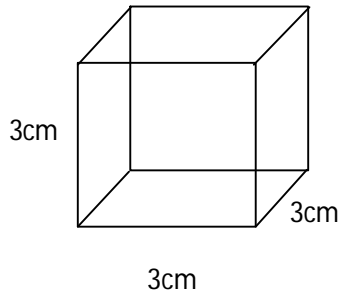
Volume: equal to the area of the base time height: "$V = (area\ of\ base) \times (height)$". The base must be the same as the top.

Cube

Volume

3cm

3cm

3cm

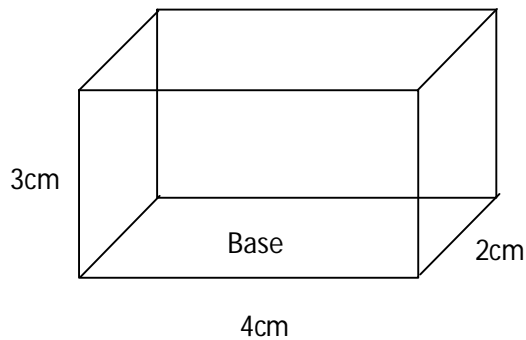$V = (area\ of\ base) \times (height)$
$V = (l \times w) \times (h)$
$V = lwh$

$V = lwh$
$V = 3 \times 3 \times 3$
$V = 27cm^3$

Rectangular Prism

Volume

3cm

Base

2cm

4cm

$V = (area\ of\ base) \times (height)$
$V = (l \times w) \times (h)$
$V = lwh$

$V = lwh$
$V = 4 \times 2 \times 3$
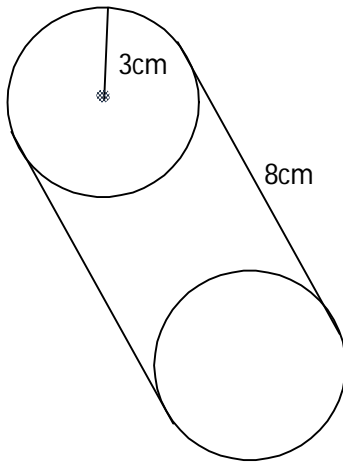$V = 24cm^3$

Notice: the formula for the volume of a cube and a rectangular prism is just: $V = lwh$.

M8 - 7.2 - Cylinder/Triangular Prism Volume Notes

Volume: equal to the area of the base times the height: "$V = (area\ of\ base) \times (height)$". The base must be the same as the top.

Cylinder

3cm

8cm

Volume

$V = (area\ of\ base) \times (height)$
$V = (\pi r^2) \times (h)$
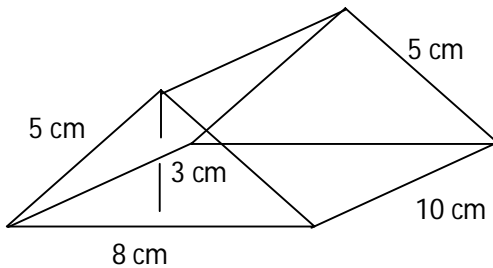$V = \pi r^2 h$

$V = \pi r^2 h$
$V = (3.14)(3)^2(8)$
$V = 226.19 cm^3$

Triangular Prism

5 cm

5 cm

3 cm

8 cm

10 cm

Volume

$V = (area\ of\ base) \times (height)$
$V = \left(\dfrac{b \times h}{2}\right) \times (H)$
$V = \dfrac{bh}{2} \times H$

$V = \dfrac{bh}{2} \times H$
$V = \dfrac{(8)(3)}{2} \times (10)$
$V = 120 cm^3$

Notice: the volume is calculated by finding the area of the base of the triangular prism using the height of the triangle, h, multiplied by the height of the prism, H.