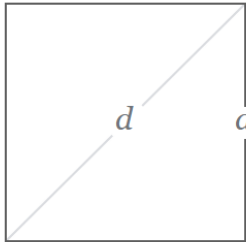

MENSURATION

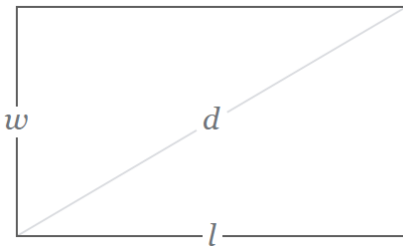
2D Shapes



$$\text{Perimeter} = 4a$$

$$\text{Diagonal} = \sqrt{2}a$$

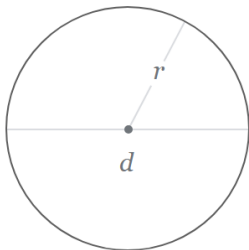
$$\text{Area} = a^2$$



$$\text{Perimeter} = 2(l + w)$$

$$\text{Diagonal} = \sqrt{l^2 + w^2}$$

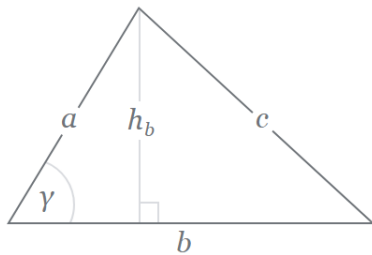
$$\text{Area} = wl$$



$$\text{Circumference} = 2\pi r$$

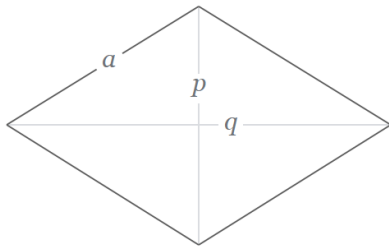
$$\text{Diameter} = 2r$$

$$\text{Area} = \pi r^2$$



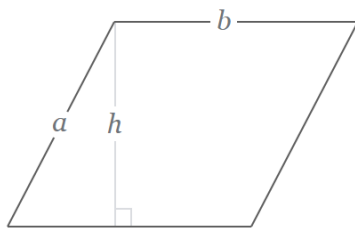
$$\text{Perimeter} = a + b + c$$

$$\text{Area} = \frac{h_b b}{2}$$



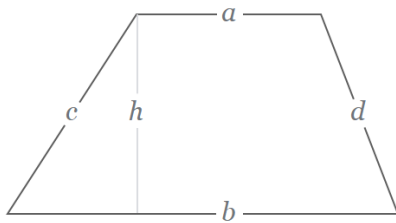
$$\text{Perimeter} = 4a$$

$$\text{Area} = \frac{pq}{2}$$



$$\text{Perimeter} = 2(a + b)$$

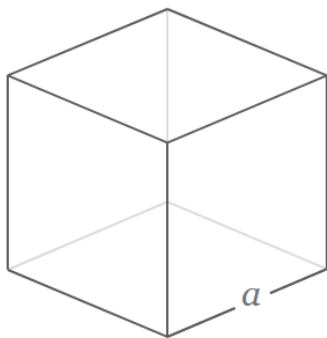
$$\text{Area} = bh$$



$$\text{Perimeter} = a + b + c + d$$

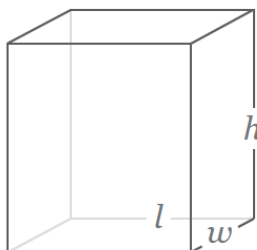
$$\text{Area} = \frac{a+b}{2}h$$

3D Shapes



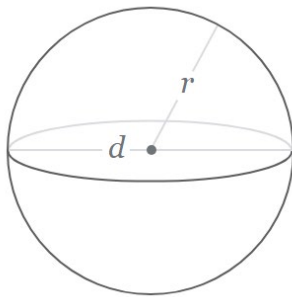
$$\text{Surface Area} = 6a^2$$

$$\text{Volume} = a^3$$



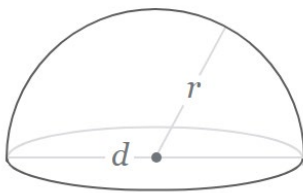
$$\text{Surface Area} = 2(wl + hl + hw)$$

$$\text{Volume} = whl$$



$$\text{Surface Area} = 4\pi r^2$$

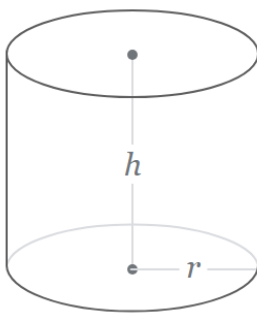
$$\text{Volume} = \frac{4}{3}\pi r^3$$



$$\text{Surface Area} = 3\pi r^2$$

$$\text{Curved Surface Area} = 2\pi r^2$$

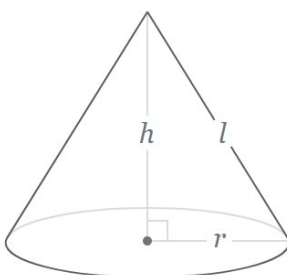
$$\text{Volume} = \frac{2}{3}\pi r^3$$



$$\text{Surface Area} = 2\pi rh + 2\pi r^2$$

$$\text{Curved Surface Area} = 2\pi rh$$

$$\text{Volume} = \pi r^2 h$$

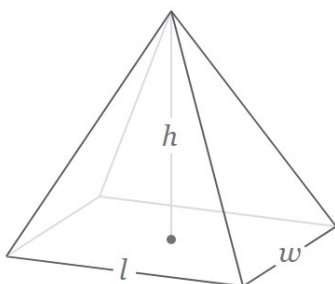


$$\text{Slant Height} = \sqrt{r^2 + h^2}$$

$$\text{Surface Area} = \pi r(r + \sqrt{h^2 + r^2})$$

$$\text{Curved Surface Area} = \pi r\sqrt{h^2 + r^2}$$

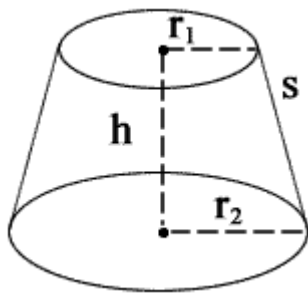
$$\text{Volume} = \pi r^2 \frac{h}{3}$$



$$\text{Surface Area} = lw + l\sqrt{\left(\frac{w}{2}\right)^2 + h^2} + w\sqrt{\left(\frac{l}{2}\right)^2 + h^2}$$

$$\text{Sloped Surface Area} = l\sqrt{\left(\frac{w}{2}\right)^2 + h^2} + w\sqrt{\left(\frac{l}{2}\right)^2 + h^2}$$

$$\text{Volume} = \frac{lwh}{3}$$



$$\text{Slant Height} = \sqrt{(r_1 - r_2)^2 + h^2}$$

$$\text{Surface Area} = \pi(r_1^2 + r_2^2 + (r_1 + r_2) \times s)$$

$$\text{Curved Surface Area} = \pi \times (r_1 + r_2) \times s$$

$$\text{Volume} = \frac{1}{3}\pi h(r_1^2 + r_2^2 + (r_1 \times r_2))$$