# Áreas y Prismas

## Áreas básicas de figuras planas

### Cuadrado

**Área:** $A = L^2$
(lado por lado)

### Rectángulo

**Área:**
A = b . h
(base por altura)

### Triángulo

**Área:**
$$A = \frac{b \cdot h}{2}$$

### Paralelogramo

**Área:**
A = b . h
(igual que un rectángulo, porque la inclinación no cambia el área)

**Trapecio**

**Área:**

$$A = \frac{(B + b) \cdot h}{2}$$

(promedio de las dos bases por la altura)

**Círculo**

**Área:**

$$A = \pi r^2$$

**Perímetros**

**Cuadrado: P = 4L**

**Rectángulo: P = 2 (b + h)**

**Triángulo: suma de sus lados**

**Círculo (circunferencia): P = 2πr**

**Introducción a los Prismas**

Un **prisma** es un sólido geométrico formado por:

Dos **caras iguales y paralelas** llamadas **bases**.
Caras laterales que son **rectángulos o paralelogramos**.
La distancia entre las bases se llama **altura del prisma**.

**Volumen general del prisma**

$$V = A_{base} \cdot h$$

**Área lateral**

$$A_L = P_{base} \cdot h$$

**Área total**

$$A_T = A_L + 2A_{base}$$

## Prisma rectangular (o cuboide)

Base: rectángulo

Fórmulas:

$$V = a \cdot b \cdot c$$
$$A_T = 2(ab + bc + ac)$$

## Cubo

Todos los lados iguales.

Fórmulas:

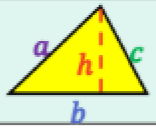
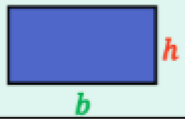
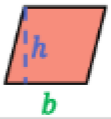
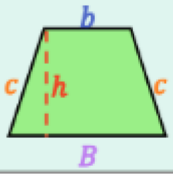
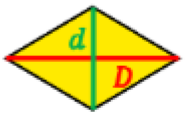
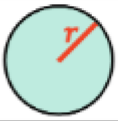
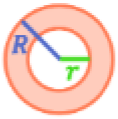
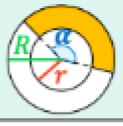
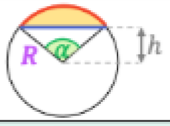
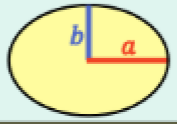
$$V = L^3$$
$$A_T = 6L^2$$

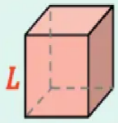
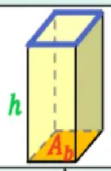
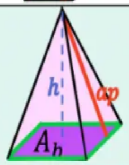
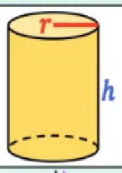
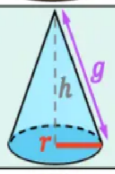
## Prisma triangular

Base: triángulo

Fórmulas:

$$V = \left(\frac{b \cdot h_{tri}}{2}\right) \cdot H$$
$$A_L = (P_{tri}) \cdot H$$
$$A_T = A_L + 2A_{tri}$$

| | | |
|---|---|---|
| Triángulo |   | $A = \frac{b \cdot h}{2}$ |
| Cuadrado |   | $A = L^2$ |
| Rectángulo |   | $A = b \cdot h$ |
| Romboide |   | $A = b \cdot h$ |
| Trapecio |   | $A = h \cdot \frac{B + b}{2}$ |
| Rombo |   | $A = \frac{D \cdot d}{2}$ |
| Polígono |   | $A = \frac{N \cdot L \cdot ap}{2}$ |
| Círculo |   | $A = \pi \cdot r^2$ |
| Sector circular |   | $A = \frac{\pi \cdot R^2 \cdot \alpha}{360}$ |
| Corona circular |   | $A = \pi(R^2 - r^2)$ |
| Trapecio circular |   | $A = \frac{\pi \cdot (R^2 - r^2) \cdot \alpha}{360}$ |
| Segmento circular |   | $A = \frac{R^2}{2} \cdot \left(\frac{\alpha \cdot \pi}{180} - \text{sen}(\alpha)\right)$ |
| Elipse |   | $A = \pi \cdot a \cdot b$ |

| | | | |
|---|---|---|---|
| Cubo |   | $A = 6 \cdot L^2$ | $V = L^3$ |
| Prisma |   | $A = 2 \cdot A_b + P_b \cdot h$ | $V = A_b \cdot h$ |
| Pirámide |   | $A = A_b + \frac{P_b \cdot ap}{2}$ | $V = \frac{1}{3} \cdot A_b \cdot h$ |
| Cilindro |   | $A = 2 \cdot \pi \cdot r \cdot (r + h)$ | $V = \pi \cdot r^2 \cdot h$ |
| Cono |   | $A = \pi \cdot r \cdot (r + g)$ | $V = \frac{1}{3} \cdot \pi \cdot r^2 \cdot h$ |
| Esfera |   | $A = 4 \cdot \pi \cdot r^2$ | $V = \frac{4}{3} \cdot \pi \cdot r^3$ |