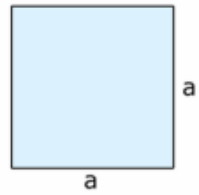
LICEO MARTA DONOSO ESPEJO

Área y Perímetro

Cuadrado



$A = a^2$

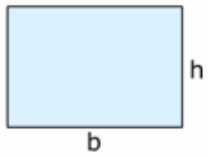
$P = 4a$

Ángulo interno $\alpha = 90°$

Ángulo externo $\beta = 90°$

Núm. diagonales $ND = 2$

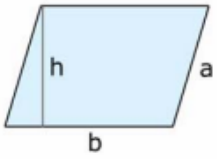
Rectángulo



$A = b \cdot h$

$P = 2b + 2h$

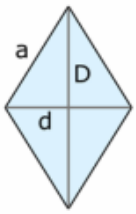
Paralelogramo



$A = b \cdot h$

$P = 2b + 2a$

Rombo

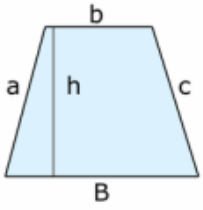


$A = \frac{d \cdot D}{2}$

$P = 4a$

$4a^2 = d^2 + D^2$

Trapecio

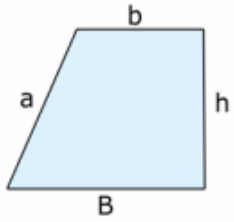


$A = \frac{b + B}{2} h$

$P = a + b + B + c$

LICEO MARTA DONOSO ESPEJO

Trapecio recto

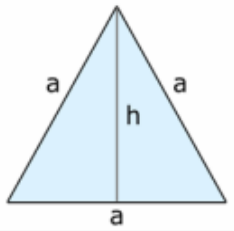


$$A = \frac{b+B}{2}h$$

$$P = a+b+B+h$$

$$a^2 = (B-b)^2 + h^2$$

Triángulo equilátero



$$A = \frac{a \cdot h}{2} = \frac{\sqrt{3}}{4}a^2$$

$$P = 3a$$

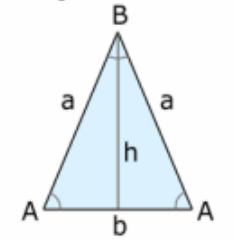
$$h = \frac{\sqrt{3}}{2}a$$

Ángulo interno $\alpha = 60°$

Ángulo externo $\beta = 120°$

Núm. diagonales $ND = 0$

Triángulo isósceles

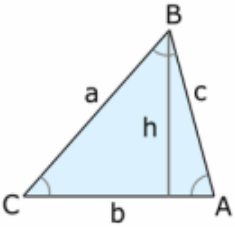


$$A = \frac{b \cdot h}{2} = \frac{a \cdot b \cdot \text{sen } A}{2}$$

$$P = 2a + b\,, \qquad h = a \cdot \text{sen } A$$

$$4a^2 = 4h^2 + b^2$$

Triángulo escaleno

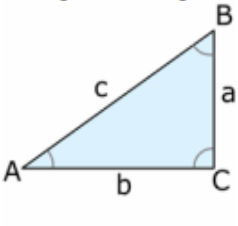


$$A = \frac{b \cdot h}{2}$$

$$A = \sqrt{s(s-a)(s-b)(s-c)} \qquad s = \frac{a+b+c}{2}$$

$$P = a+b+c \qquad h = c \cdot \text{sen } A = a \cdot \text{sen } C$$

Triángulo rectángulo



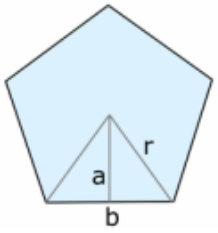
$$A = \frac{b \cdot a}{2} \qquad a = c \cdot \text{sen } A = c \cdot \cos B$$

$$P = a+b+c \qquad b = c \cdot \text{sen } B = c \cdot \cos A$$

$$c^2 = a^2 + b^2$$

LICEO MARTA DONOSO ESPEJO

Pentágono regular



$$A = \frac{5a\cdot b}{2} = \frac{5}{8}r^2\sqrt{10+2\sqrt{5}} = \frac{5}{2}r^2\cdot\text{sen } 72°$$

$P = 5b$ $\qquad 4r^2 = 4a^2 + b^2$

$$b = \frac{r}{2}\sqrt{10-2\sqrt{5}} = 2r\cdot\text{sen } 36°$$

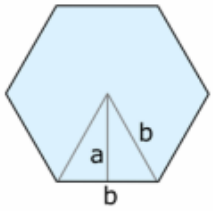
$$a = \frac{r}{4}\sqrt{6+2\sqrt{5}} = r\cdot\cos 36°$$

Ángulo interno $\alpha = 108°$

Ángulo externo $\beta = 72°$

Núm. diagonales $ND = 5$

Hexágono regular



$$A = \frac{3\sqrt{3}}{2}b^2 = 3b^2\cdot\text{sen } 60°$$

$P = 6b$

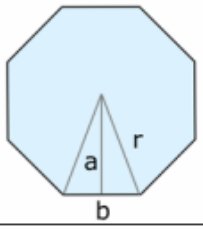
$$a = \frac{\sqrt{3}}{2}b = b\cdot\cos 30°$$

Ángulo interno $\alpha = 120°$

Ángulo externo $\beta = 60°$

Núm. diagonales $ND = 9$

Octágono regular



$$A = 4\cdot a\cdot b = 8\cdot a^2\cdot\tan 22{,}5° = \left(8\sqrt{2}-8\right)a^2 = \frac{2b^2}{\tan 22{,}5°} = \frac{2b^2}{\sqrt{2}-1}$$

$P = 8\cdot b = 16\cdot a\cdot\tan 22{,}5°$

$a = r\cdot\cos 22{,}5°$

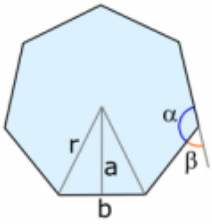
$b = 2r\cdot\text{sen}\,22{,}5°$

Ángulo interno $\alpha = 135°$

Ángulo externo $\beta = 45°$

Núm. diagonales $ND = 20$

Polígono regular de *n* lados



$$A = \frac{n\cdot a\cdot b}{2} = n\cdot a^2\cdot\tan\frac{180°}{n}$$

$$P = n\cdot b = 2n\cdot a\cdot\tan\frac{180°}{n}$$

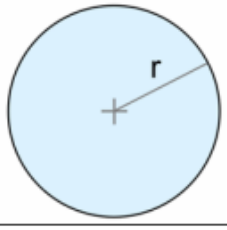
$$a = r\cdot\cos\frac{180°}{n} \qquad b = 2r\cdot\text{sen}\frac{180°}{n}$$

Ángulo interno: $\alpha = \dfrac{(n-2)\cdot 180°}{n}$

Ángulo externo: $\beta = 180° - \alpha$

Núm. diagonales: $ND = \dfrac{n\cdot(n-3)}{2}$

Círculo

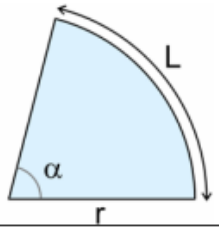


$$A = \pi r^2$$

$$P = 2\pi r$$

LICEO MARTA DONOSO ESPEJO

Sector circular



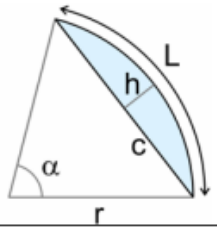
$$A = \pi r^2 \frac{\alpha}{360°}$$

$$L = \pi r \frac{\alpha}{180°}$$

$$P = 2r + L$$

α en grados sexagesimales

Segmento circular



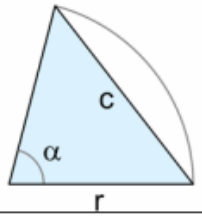
$$A = r^2\left(\frac{\pi \cdot \alpha}{360°} - \frac{\operatorname{sen}\alpha}{2}\right)$$

$$h = r\left(1 - \cos\frac{\alpha}{2}\right) \qquad c = 2r \cdot \operatorname{sen}\frac{\alpha}{2} \qquad L = \pi r \frac{\alpha}{180°}$$

$$P = L + c \qquad r = \frac{h}{2} + \frac{c^2}{8h}$$

α en grados sexagesimales

Triángulo circular

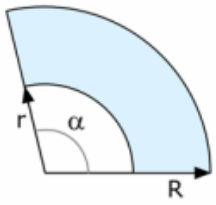


$$A = r^2 \frac{\operatorname{sen}\alpha}{2} \qquad c = 2r \cdot \operatorname{sen}\frac{\alpha}{2}$$

$$P = 2r + c$$

α en grados sexagesimales

Trapecio circular

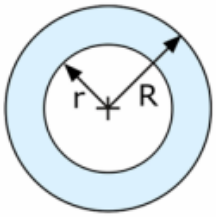


$$A = \pi\left(R^2 - r^2\right)\frac{\alpha}{360°}$$

$$P = 2\pi\,(R + r)\frac{\alpha}{360°} + 2(R - r)$$

α en grados sexagesimales

Corona circular



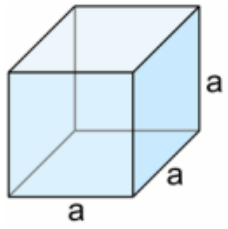
$$A = \pi\left(R^2 - r^2\right)$$

$$P = 2\pi\,(R + r)$$

LICEO MARTA DONOSO ESPEJO

Área y Volumen

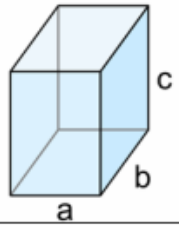
Cubo (hexaedro)



$$A = 6\,a^2$$

$$V = a^3$$

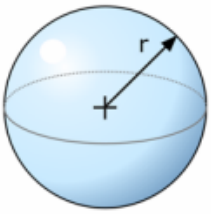
Prisma recto



$$A = 2a{\cdot}b + 2a{\cdot}c + 2b{\cdot}c$$

$$V = a{\cdot}b{\cdot}c$$

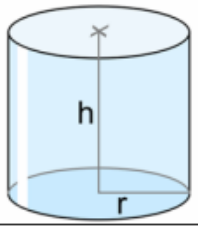
Esfera



$$A = 4\pi{\cdot}r^2$$

$$V = \frac{4\pi{\cdot}r^3}{3}$$

Cilindro

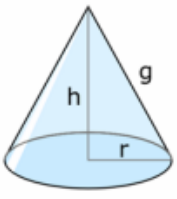


$$A_{TOTAL} = 2\pi\, r\,(h + r)$$

$$A_{BASES} = 2\pi\, r^2 \qquad A_{LATERAL} = 2\pi\, r{\cdot}h$$

$$V = \pi{\cdot}r^2{\cdot}h$$

Cono



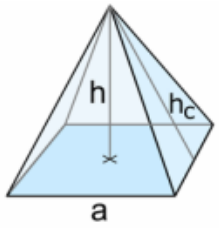
$$A_{TOTAL} = \pi\, r{\cdot}g + \pi\, r^2$$

$$A_{BASE} = \pi\, r^2 \qquad A_{LATERAL} = \pi\, r{\cdot}g$$

$$V = \frac{\pi\, r^2{\cdot}h}{3} \qquad g^2 = h^2 + r^2$$

LICEO MARTA DONOSO ESPEJO

Pirámide

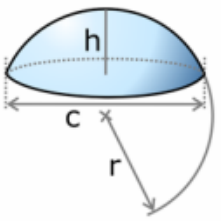


$$A_{TOTAL} = A_{LAT} + A_{BASE}$$

$$A_{LAT} = \frac{\text{Perímetro}_{BASE} \cdot h_C}{2}$$

$$V = \frac{A_{BASE} \cdot h}{3}$$

Segmento esférico

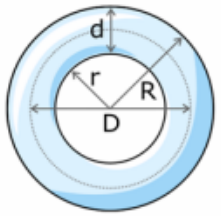


$$A_{TOTAL} = A_{SUP.CURVA} + A_{BASE}$$

$$A_{BASE} = \frac{\pi c^2}{4} \qquad A_{SUP.CURVA} = 2\pi r \cdot h = \frac{\pi}{4}\left(c^2 + 4h^2\right)$$

$$V = \frac{\pi}{6} h \left(\frac{3c^2}{4} + h^2\right) = \pi h^2 \left(r - \frac{h}{3}\right) \qquad r = \frac{h}{2} + \frac{c^2}{8h}$$

Toro

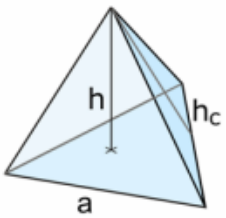


$$A = \pi^2 D \cdot d = \pi^2 (R^2 - r^2)$$

$$V = \frac{\pi^2}{4} D \cdot d^2 = \frac{\pi^2}{4} (R + r) \cdot (R - r)^2$$

$$D = R + r\,, \qquad d = R - r$$

Tetraedro



$$A = \sqrt{3}\, a^2$$

$$A_{CARA} = \frac{\sqrt{3}}{4} a^2 \qquad h_C = \frac{\sqrt{3}}{2} a \qquad h = \frac{\sqrt{6}}{3} a$$

$$V = \frac{\sqrt{2}}{12} a^3$$