

Area Formulas — 2D Shapes

Every two-dimensional area and perimeter formula.

Square

Area: $A = s^2$

Perimeter: $P = 4s$

Diagonal: $d = s\sqrt{2}$

Rectangle

Area: $A = l \cdot w$

Perimeter: $P = 2(l + w)$

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

Triangle

Area (base & height): $A = \frac{1}{2} b h$

Area (Heron's): $A = \sqrt{s(s-a)(s-b)(s-c)}$

Semiperimeter: $s = (a+b+c)/2$

Perimeter: $P = a + b + c$

Right Triangle

Hypotenuse: $c = \sqrt{a^2 + b^2}$

Area: $A = \frac{1}{2} a b$

Perimeter: $P = a + b + c$

Circle

Area: $A = \pi r^2$

Circumference: $C = 2\pi r$

Diameter: $d = 2r$

Trapezoid

Area: $A = \frac{1}{2}(a + b)h$

Median: $m = (a + b)/2$

Parallelogram

Area: $A = b h$

Perimeter: $P = 2(a + b)$

Rhombus

Area: $A = \frac{1}{2} d_1 d_2$

Side: $s = \sqrt{((d_1/2)^2 + (d_2/2)^2)}$

Perimeter: $P = 4s$

Regular Polygon

Perimeter: $P = n s$

Apothem: $a = s/2 \tan(180^\circ/n)$

Area: $A = \frac{1}{2} a P$

Interior angle: $((n-2) \cdot 180^\circ)/n$