Perimeter Formula Sheet

Perimeter of straight sides

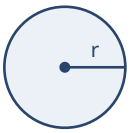
Triangle	$P = a + b + c$
Rectangle or parallelogram	$P = 2(a + b)$
Trapezoid	$P = a + b + c + d$
Regular n-gon	$P = ns$

Use side lengths, not perpendicular height. Trace each boundary edge exactly once.

Circles, arcs & sector borders

Full circle	$C = 2\pi r = \pi d$
Arc in radians	$s = r\theta$
Arc in degrees	$s = (\theta/360°)2\pi r$
Sector boundary	$P = s + 2r$

A sector smaller than a full turn includes two radii. Arc length uses linear units.



Trace a composite boundary

Semicircle on a 6-by-4 rectangle

r = 3 along the 6-unit side

Exposed straight edges	$6 + 4 + 4 = 14$
Add the semicircle arc	$P = 14 + 3\pi$

The diameter is an interior seam. It does not belong to the outside boundary.

Length along a curve

Graph y = f(x)	$L = \int_a^b \sqrt{(1 + f'(x)^2)}\, dx$
Parametric curve	$L = \int_a^b \sqrt{(x'(t)^2 + y'(t)^2)}\, dt$
Example: y = x on [0,3]	$L = 3\sqrt{(2)}$

Use smooth pieces. For a parametrization that retraces, this counts distance traveled.

Distance in 2D or 3D

Planar distance	$d = \sqrt{(\Delta x^2 + \Delta y^2)}$
Space distance	$d = \sqrt{(\Delta x^2 + \Delta y^2 + \Delta z^2)}$
Example: (1,2) to (4,6)	$d = \sqrt{(3^2 + 4^2)} = 5$

Take the second coordinate minus the first for each change. The square root is nonnegative.

