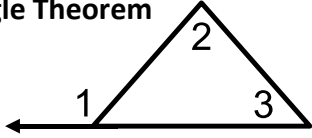


Geometry Formulas

| | | |
|---|---|--|
| Midpoint Formula (on a line with endpoints a and b) $M\left(\frac{a + b}{2}\right)$ | Midpoint Formula (on a plane with endpoints (x_1, y_1) and (x_2, y_2)) $M\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$ | |
| Distance Formula (on a plane with endpoints (x_1, y_1) and (x_2, y_2)) $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ | Square $P = 4s$ $A = s^2$ | Rectangle $P = 2b + 2h$ $A = bh$ |
| Conditional Statements Conditional $\rightarrow a \rightarrow b$ Converse $\rightarrow b \rightarrow a$ Inverse $\rightarrow \sim a \rightarrow \sim b$ Contrapositive $\rightarrow \sim b \rightarrow \sim a$ | Triangle $P = a + b + c$ $A = \frac{1}{2}bh$ | Circle $C = d\pi$ $C = 2\pi r$ $A = \pi r^2$ |
| Triangle Angle-Sum Theorem $m\angle A + m\angle B + m\angle C = 180^\circ$ | Properties of Congruence Reflexive Property $\angle A \cong \angle A$ Symmetric Property If $\angle A \cong \angle B$, then $\angle B \cong \angle A$ Transitive Property If $\angle A \cong \angle B$ and $\angle B \cong \angle C$, then $\angle A \cong \angle C$ | |
| Triangle Exterior Angle Theorem $m\angle 1 = m\angle 2 + m\angle 3$ |  | |
| Slope (on a plane with endpoints (x_1, y_1) and (x_2, y_2)) $m = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$ | Polygon Angle-Sum Theorem Angle sum of a polygon is $(n - 2)180$ n = number of sides/vertices | |
| Forms of Linear Equations $y = mx + b$ $m = \text{slope} \quad b = y - \text{intercept}$ $y - y_1 = m(x - x_1)$ $m = \text{slope} \quad (x_1, y_1)$ is a point on the line | Corollary to the Polygon Angle-Sum Theorem One angle of a regular polygon is $\frac{(n - 2)180}{n}$ n = number of sides/vertices | |
| Polygon Exterior Angle-Sum Theorem The sum of the exterior angles of a convex polygon is 360. | Trapezoid Midsegment Theorem The midsegment of a trapezoid is the average of the bases. | |

