

Coordinate Geometry



Distance

$$PQ = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}; \quad OP = \sqrt{x^2 + y^2}$$

**Section formula,
ratio $m : n$
(internal)**

$$\left(\frac{mx_2 + nx_1}{m+n}, \frac{my_2 + ny_1}{m+n} \right)$$

Midpoint

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$