Coordinate Proofs

10th Grade

Proving a shape is what it claims to be, using only distance and slope.

Place a figure on the coordinate plane and use the distance and slope formulas to prove properties algebraically.

$$d = \sqrt{[(\Delta x)^2 + (\Delta y)^2]} \cdot m = \Delta y / \Delta x$$

Prove a parallelogram

opposite slopes equal

Both pairs of opposite sides parallel.

Prove a rectangle

add: adjacent slopes × = −1

Parallelogram with a right angle.

Prove a rhombus

all four distances equal

Parallelogram with equal sides.

Prove isosceles

two distances equal

Two sides the same length.

Place the figure with a vertex at the origin and a side on an axis. It makes the algebra much lighter.