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## Proofs Using Coordinate Geometry



**Content Standard**  
**G.GPE.4** Use coordinates to prove simple geometric theorems algebraically.

**Objective** To prove theorems using figures in the coordinate plane

**Essential Understanding** You can prove geometric relationships using variable coordinates for figures in the coordinate plane.



### Problem 1 Writing a Coordinate Proof

Use coordinate geometry to prove that the midpoint of the hypotenuse of a right triangle is equidistant from the three vertices.

**Given:**  $\triangle OEF$  is a right triangle.

$M$  is the midpoint of  $\overline{EF}$ .

**Prove:**  $EM = FM = OM$

**Coordinate Proof:**

