

## Coordinate Geometry Demonstrations

Name \_\_\_\_\_

Steps for Demonstrations	Formulas
1. Draw and label a graph or sketch 2. Show your formulas and calculations 3. State what your calculations tell you 4. Make a conclusion based on your information.	distance: $\sqrt{(\Delta x)^2 + (\Delta y)^2}$  mdpt: $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$  slope: $\frac{\Delta y}{\Delta x}$

### MAKE GRAPHS ON A SEPARATE PIECE OF GRAPH PAPER

- A quadrilateral has vertices A(2,2); B(5, -2); C(9,1); D(6, 5).
  - Show that ABCD is a square by showing that all sides have equal lengths and consecutive sides are perpendicular.
  - Show that the diagonals of ABCD are perpendicular and equal.
  
- The vertices of  $\triangle EFG$  are E(-2, -4); F(10, 5); G(-8, 4)
  - Show that  $\triangle EFG$  is a right triangle.
  - Find the area of  $\triangle EFG$
  
- Quadrilateral HIJK has coordinates H(2,6); I(10, 8); J(14, -1); K(2, -4)
  - Show that HIJK has a pair of parallel sides
  - Is HIJK a parallelogram? Explain.