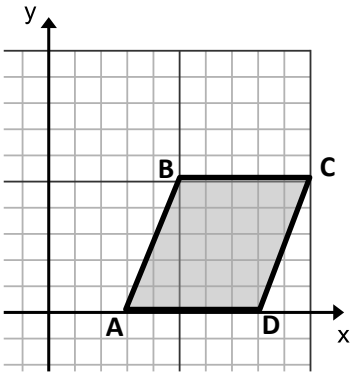
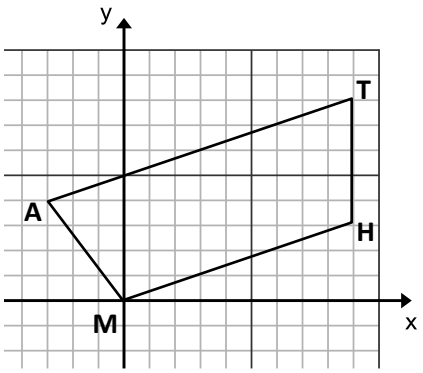
Geometry Name: _____ Section: _____ Due: _____

PROBLEM SET 6-8R

1. The vertices of quadrilateral ABCD are A(3, 0), B(5, 5), C(10, 5), and D(8, 0). Prove that ABCD is a parallelogram **using 1 pair of opposite sides is parallel and congruent** with coordinate geometry.

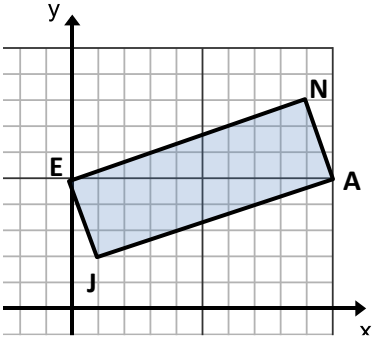


2. The vertices of quadrilateral MATH are M(0, 0), A(-3, 4), T(9, 8), and H(9, 3). Prove by means of coordinate geometry that **trapezoid** MATH is an **isosceles trapezoid**.

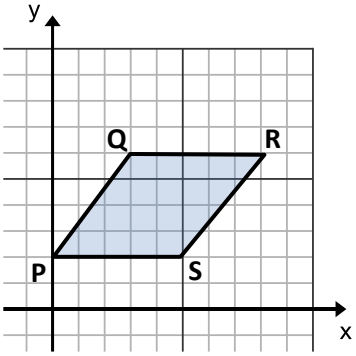


3. From #2, write the equation of the line of reflection that maps $\overline{MA}$ onto $\overline{HT}$:_____

4. The vertices of quadrilateral JANE are J(1, 2), A(10, 5), N(9, 8), and E(0, 5). Using coordinate geometry, show that **parallelogram** JANE is a **rectangle**.



5. The vertices of quadrilateral PQRS are P(0,2), Q(3,6), R(8,6), and S(5,2). Using coordinate geometry, show that **parallelogram** PQRS is a **rhombus**.



6. In order to prove that a quadrilateral is a square using coordinate geometry, which of the following methods would be valid? Circle either valid or not valid. If a method is not valid, state which type of quadrilateral would be proven.

A	Use slope to show both pairs of opposite sides parallel, one set of consecutive sides perpendicular and the diagonals are perpendicular.	VALID	NOT VALID: _____
B	Use the distance formula to show all four sides are congruent.	VALID	NOT VALID: _____
C	Use the distance formula to show all four sides are congruent and the diagonals are congruent.	VALID	NOT VALID: _____
D	Use slope to show all pairs of consecutive sides are perpendicular.	VALID	NOT VALID: _____
E	Use the midpoint formula to show diagonals bisect each other.	VALID	NOT VALID: _____
F	Use the midpoint formula to show the diagonals bisect each other, slope to show the diagonals are perpendicular, and distance formula to show the diagonals are congruent.	VALID	NOT VALID: _____

7. Prove that the diagonals of square FISH with F(0,5) I(3,-1) S(-3,-4) H(-6,2) are **congruent perpendicular bisectors of each other**.