First name: _____ Last name: _____ Student ID: _____

Analytic Geometry (1) Homework

1. Find the distance between the following given points.
a) P_1 (- 3, - 2) and P_2 (-7, 1) b) N (- 3/4, - 2) and M (1, - 1/2)

2. Find the midpoint of the line between
a) P_1 (-8/3, 4/5) and P_2 (- 4/3, 6/5) b) A (1.5, -2.5) and B (-1, 4)

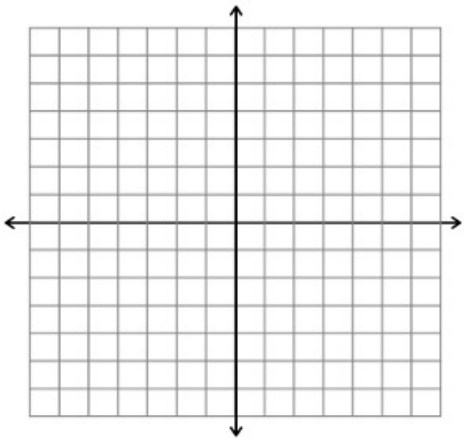
3. P(-3, -1) is one endpoint of PQ. M(1, 1) is the midpoint of PQ. Determine the coordinates of endpoint Q.

4. The radius of a circle has endpoints O(-1, 3) and R(2, 2).
a) Determine the endpoints of the diameter of this circle.

b) Determine the length of the diameter.

5. A quadrilateral has vertices at J(10, 0), K(8, 6), L(12, 6), and M(14, 0).
Show that the diagonals bisect each other.

6. Determine the type of quadrilateral defined by vertices A(-5,3), B(-4,-2), C(7,-1), D(6,4)?



7. A triangle has vertices at L(-7, 0), M(2, 1), and N(-3, 5). Verify that it is a right isosceles triangle.

8. Show that the midsegments of a rhombus with vertices at R(-5, 2), S(-1, 3), T(-2, -1), and U(-6, -2) form a rectangle.

9. Show that the midsegments of a quadrilateral with vertices at P(-2, -2), Q(0, 4), R(6, 3), and S(8, -1) form a rhombus.

10. A trapezoid has vertices at A(1, 2), B(-2, 1), C(-4, -2), and D(2, 0).
a) Show that the line segment joining the midpoints of BC and AD is parallel to both AB and CD.

b) Show that the length of this line segment is half the sum of the lengths of the parallel sides.

11. Triangle ABC has vertices at A(3, 4), B(-2, 0), C(5, 0). Prove that the area of the triangle formed by joining the midpoints of triangle ABC is ¼ the area of triangle ABC.