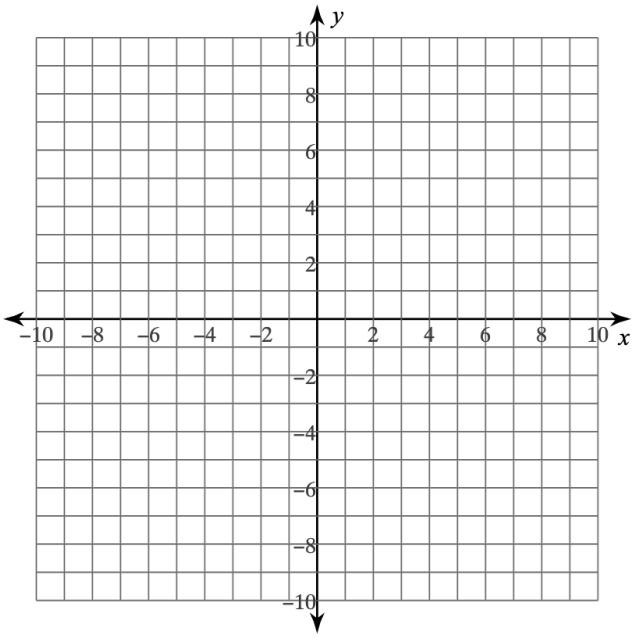
Math 10D – Unit 2: Analytic Geometry **Name:**_____

Homework 2.2 – Big Questions using Midpoint and Distance **Date:**_____

1. Equation of the Median:

Plot the points $A(-3,-1), B(3,5), C(7,-3)$. Draw the triangle. Find the equation of the medians from vertex A, vertex B, and vertex C. (note: this is three separate equations).



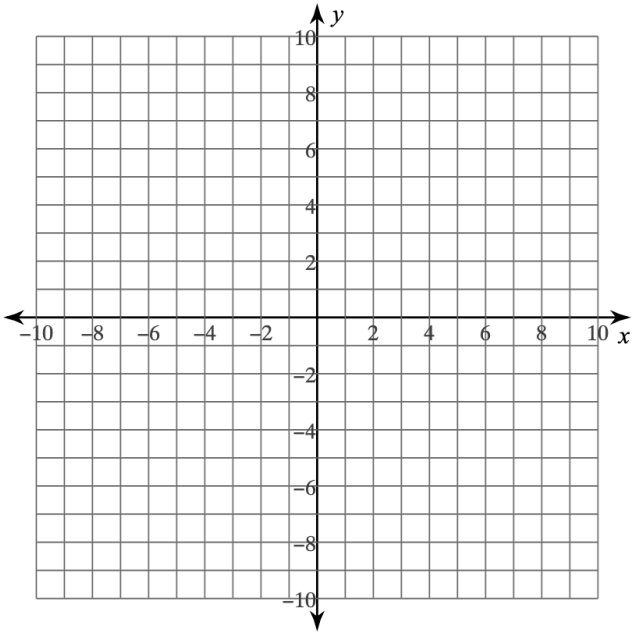
2. Determine the Equation of the Perpendicular Bisector:

a) $A(1,8)$ and $B(5,2)$

b) $C(4,6)$ and $B(12,-4)$

3. Midsegments

Plot the triangle $P(7,7), Q(-3,-5), R(5,-3)$. Draw the midsegment from line PQ to line PR. Calculate the slope of that midsegment, then the slope of line QR. What do you notice?



4. Calculate the length of the shortest distance from the point to the line:

a) $y = \frac{-2}{3}x + 4$ and $A(7,8)$

b) The point $D(-2,10)$ to the line formed by $A(-4,-6)$ and $B(12,-2)$. (Note: Need y=mx+b).