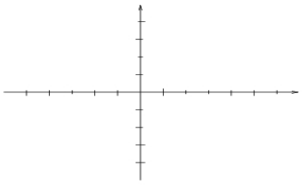
Worksheet 1 (Cartesian Coordinates; Distance and Midpoint Formulas)

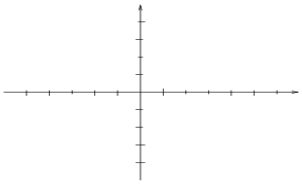
1. Find the page in section 1.1 that mentions **quadrants**. On the coordinate axes below:
   (a) Label each of the four quadrants (I, II, III, IV).
   (b) Plot the point $P = (1, -3)$. What quadrant is P in?
   (c) If a point's x-coordinate is positive, what quadrant(s) can it be in?



2. For each of the following, find the midpoint of the line segment joining the points P_1 and P_2.
   (a) $P_1 = (2, -3)$; $P_2 = (4, 2)$
   (b) $P_1 = (-1, 0)$; $P_2 = (2, 4)$

3. Plot each of the following points and form the triangle ABC. Find the distances between all three pairs of points and use this to verify that the triangle is a right triangle. Find its area.

$$A = (-2, 5); \quad B = (1, 3); \quad C = (-1, 0)$$



4. Determine what the graph of $y = x^2 - 3$ looks like by plotting at least 5 points on it.