5. (12 points) The graph of
$$x^2 - xy + y^2 = 3$$
is a "tilted" ellipse (see the figure below). Among all points (x, y) on this graph, find the points that have the largest and smallest values of y. [Hint: Look at the figure to consider the conditions that would be true for y to take on largest or smallest values.] Be sure to show all work in order to justify your answer (*i.e..* estimating points from a graph will not be sufficient).
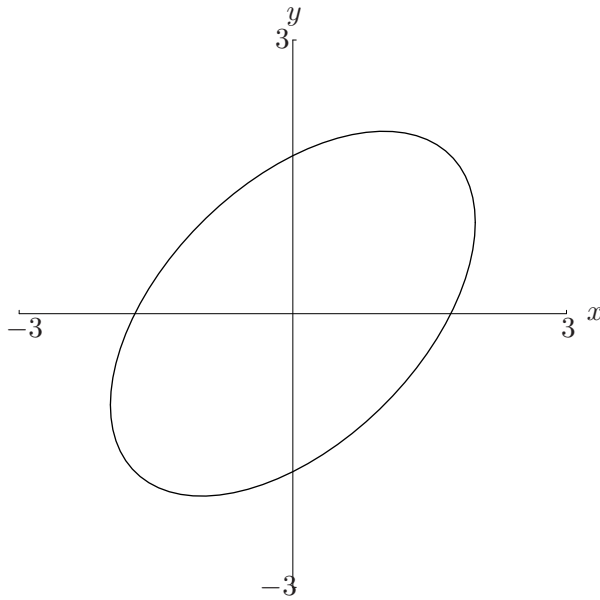
Largest y value is associated with the point: _____

Smallest y value is associated with the point: _____