Solve each of the following problems. Show your work and your solutions neatly organized on separate work paper.

1. Find the least and the greatest straight line distance between the ellipse $4x^2 + y^2 = 16$ and the point (1, 0).

2. A painting 10 feet tall hangs on a wall with its bottom edge 8 feet above a woman's eye level. How far from the wall should she stand so that the picture will subtend the greatest possible angle at her eye?