1. Find the point on the line $y = 2x + 5$ that is closest to origin.

2. Find the dimensions of the largest rectangle that can be inscribed in a semicircle of radius 4, so that one side of the rectangle sits on the diameter of the semicircle.
3. You are given a 4ft long wire. Construct a square and/or a circle so that the total enclosed area is a

(a) maximum

(b) minimum