BRIEF POINTS ON LECTURE

1) **Intersection of a line and circle:** There are three ways a line and a circle can be associated
   a) the line cuts the circle at two distinct points.
   b) the line is a tangent to the circle.
   c) the line misses the circle.

   Explanation:

   - If the line cuts through the circle, there will be **two points** of intersection.
   - If the line is a tangent to the circle, there will be **one point** of intersection.
   - If the line misses the circle, there will be **no point** of intersection.

2) **Intercepts made by circle a on the axes**:

   a) The **length of intercept** made by the circle $x^2 + y^2 + 2gx + 2fy + c = 0$ with **X axes** is **$2(g^2-c)^{1/2}$**.
   b) The **length of intercept** made by the circle $x^2 + y^2 + 2gx + 2fy + c = 0$ with **Y axes** is **$2(f^2-c)^{1/2}$**.