**Problem statement** Sketch the parabola \( y = x^2 \) and the line \( y = 2x - 1 \).

a) Show that \((1, 1)\) is the only point where the parabola and line intersect.

b) Show that any line other than \( y = 2x - 1 \) which contains \((1, 1)\) must intersect the parabola in some point besides \((1, 1)\).

**Suggestion** What condition guarantees that the line \( y = mx + b \) contains the point \((1, 1)\)? What condition guarantees that the quadratic equation \( x^2 = mx + b \) has only one root?