1. The point at which the normal to the curve $y = x + \frac{1}{x}, x > 0$ is perpendicular to the line $3x - 4y - 7 = 0$ is:

   (a) $(2, \frac{5}{2})$
   (b) $(\pm 2, \frac{5}{2})$
   (c) $(\frac{-1}{2}, \frac{5}{2})$
   (d) $(\frac{1}{2}, \frac{5}{2}$

2. The points on the curve $\frac{x^2}{9} + \frac{y^2}{16} = 1$ at which the tangents are parallel to y-axis are:

   (a) $(0, \pm 4)$
   (b) $(\pm 4, 0)$
   (c) $(\pm 3, 0)$
   (d) $(0, \pm 3)$

3. For which value of m is the line $y = mx + 1$ a tangent to the curve $y^2 = 4x$?

   (a) $\frac{1}{2}$
   (b) 1
   (c) 2
   (d) 3