

1. The point at which the normal to the curve

$$y = x + \frac{1}{x}, x > 0 \quad (1)$$

is perpendicular to the line

$$3x - 4y - 7 = 0 \quad (2)$$

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

$$\frac{x^2}{9} + \frac{y^2}{16} = 1 \quad (3)$$

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

$$y = mx + 1 \quad (4)$$

a tangent to the curve

$$y^2 = 4x \quad (5)$$

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