

# Mathematics

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(Chapter – 3) (Pair of Linear Equations in Two Variables)(Exemplar Problems)  
(Class – X)

## Exercise 3.1

Choose the correct answer from the given four options:

### Question 6:

For what value of  $k$ , do the equations  $3x - y + 8 = 0$  and  $6x - ky = -16$  represent coincident lines?

- (A)  $\frac{1}{2}$                       (B)  $-\frac{1}{2}$                       (C) 2                      (D) -2

### Answer 6:

(C) 2

### Solution:

The given equations are  $3x - y + 8 = 0$  and  $6x - ky + 16 = 0$ .

Comparing with  $a_1x + b_1y + c_1 = 0$  and  $a_2x + b_2y + c_2 = 0$ , we have

$$\frac{a_1}{a_2} = \frac{3}{6} = \frac{1}{2}, \quad \frac{b_1}{b_2} = \frac{-1}{-k} = \frac{1}{k} \quad \text{and} \quad \frac{c_1}{c_2} = \frac{8}{16} = \frac{1}{2}$$

For coincident lines:

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$$

$$\Rightarrow \frac{1}{2} = \frac{1}{k} = \frac{1}{2}$$

$$\Rightarrow k = 2$$

Hence, the option (C) is correct.

