

# 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 7:

If the lines given by  $3x + 2ky = 2$  and  $2x + 5y + 1 = 0$  are parallel, then the value of  $k$  is

- (A)  $\frac{-5}{4}$                       (B)  $\frac{2}{5}$                       (C)  $\frac{15}{4}$                       (D)  $\frac{3}{2}$

### Answer 7:

- (C)  $\frac{15}{4}$

### Solution:

The given equations are  $3x + 2ky - 2 = 0$  and  $2x + 5y + 1 = 0$ .

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

$$\frac{a_1}{a_2} = \frac{3}{2}, \quad \frac{b_1}{b_2} = \frac{2k}{5} \quad \text{and} \quad \frac{c_1}{c_2} = \frac{-2}{1}$$

For parallel lines:

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$$
$$\Rightarrow \frac{3}{2} = \frac{2k}{5} \neq \frac{-2}{1}$$

Solving first two ratios, we get

$$4k = 15$$

$$\Rightarrow \frac{15}{4}$$

Hence, the option (C) is correct.

