

Ex 3.2 Question 2, 3

②  $5x - 4y + 8 = 0$   
 $7x + 6y - 9 = 0$

$$\frac{a_1}{a_2} = \frac{5}{7}, \frac{b_1}{b_2} = \frac{-4}{6}, \frac{c_1}{c_2} = \frac{8}{-9}$$

$$\therefore \frac{a_1}{a_2} \neq \frac{b_1}{b_2}$$

$\therefore$  lines intersect at a point.

①  $9x + 3y + 12 = 0$   
 $18x + 6y + 24 = 0$

$$\frac{a_1}{a_2} = \frac{9}{18}, \frac{b_1}{b_2} = \frac{3}{6}, \frac{c_1}{c_2} = \frac{12}{24}$$

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

$\therefore$  lines are coincident

③  $6x - 3y + 10 = 0$   
 $2x - y + 9 = 0$

$$\frac{a_1}{a_2} = \frac{6}{2}, \frac{b_1}{b_2} = \frac{-3}{-1}, \frac{c_1}{c_2} = \frac{10}{9}$$

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

$\therefore$  lines are parallel

③  $3x + 2y = 5$   
 $2x - 3y = 7$

$$\frac{a_1}{a_2} = \frac{3}{2}, \frac{b_1}{b_2} = \frac{-2}{-3}, \frac{c_1}{c_2} = \frac{5}{7}$$

$$\therefore \frac{a_1}{a_2} \neq \frac{b_1}{b_2}$$

$\therefore$  pair of equations is consistent.

①  $2x - 3y = 8$   
 $4x - 6y = 9$

$$\frac{a_1}{a_2} = \frac{2}{4}, \frac{b_1}{b_2} = \frac{-3}{-6}, \frac{c_1}{c_2} = \frac{8}{9}$$

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

pair of equations is inconsistent.

③  $\frac{3}{2}x + \frac{5}{3}y = 7, 9x - 10y = 14$

$$\frac{a_1}{a_2} = \frac{3/2}{9} = \frac{3}{2} \times \frac{1}{9} = \frac{1}{6}$$

$$\therefore \frac{a_1}{a_2} \neq \frac{b_1}{b_2}$$

$\therefore$  pair of equations is consistent.