

$$\textcircled{4} \text{ i } \quad \begin{aligned} 3x - y - 5 &= 0 \\ 6x - 2y - p &= 0 \end{aligned}$$

$$\frac{a_1}{a_2} = \frac{3}{6}, \quad \frac{b_1}{b_2} = \frac{-1}{-2}, \quad \frac{c_1}{c_2} = \frac{-5}{-p}$$

$$= \frac{1}{2}, \quad = \frac{1}{2}, \quad = \frac{5}{p}$$

For parallel lines

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

$$\frac{1}{2} = \frac{1}{2} \neq \frac{5}{p}$$

$$\Rightarrow \frac{1}{2} \neq \frac{5}{p}$$

$$\Rightarrow p \neq 10$$

all real values except 10

$$\textcircled{4} \text{ ii } \quad -x + py = 1, \quad px - y = 1$$

$$\frac{a_1}{a_2} = \frac{-1}{p}, \quad \frac{b_1}{b_2} = \frac{p}{-1}, \quad \frac{c_1}{c_2} = \frac{1}{1}$$

For no solution

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

$$-\frac{1}{p} = \frac{p}{-1} \neq \frac{1}{1}$$

$$-\frac{1}{p} = \frac{p}{-1}$$

$$\Rightarrow p^2 = 1$$

$$\Rightarrow p = \pm 1$$

if $p = 1$

$$\frac{a_1}{a_2} = -1$$

$$\frac{b_1}{b_2} = -1$$

$$\frac{c_1}{c_2} = 1$$

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

$$\therefore p = 1$$

if $p = -1$

$$\frac{a_1}{a_2} = 1$$

$$\frac{b_1}{b_2} = 1$$

$$\frac{c_1}{c_2} = +1$$

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

rejected