

Section : A

1) $x - y = 0$

$x + y = 0$

Here, $a_1 = 1, a_2 = +1,$
 $b_1 = -1, b_2 = 1,$ $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$

\therefore Unique solution

2) $\frac{2}{k} \neq \frac{3}{4}$ i.e. if $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$ then, the system of equations will have unique solution.

$\therefore k \neq \frac{8}{3}$

3) $225 = 135 \times 1 + 90$

$135 = 90 \times 1 + 45$

$90 = 45 \times 2 + 0$

$\therefore \text{HCF}(225, 135) = 45.$

4) $\rightarrow y=1$ & $x=1 \Rightarrow 1 = a + \frac{b}{-1}$

$\Rightarrow a - b = 1$ — (i)

$\rightarrow y=5$ & $x=-5 \Rightarrow 5 = a + \frac{b}{-5}$

$\Rightarrow 5 = a - \frac{b}{5}$

$\Rightarrow 5a - b = 25$ — (ii)

\rightarrow By solving (i) & (ii)

$5a + 1 - a = 25$

$4a = 24$

$a = 6 \Rightarrow b = 5$

$\therefore a + b = 6 + 5 = 11.$

5) $2q+1$

6) Any composite number can be expressed as the product of primes in a unique way, except for the product of order of factors.

Section : B

7) For the system of solution having no solution the condition is: $\frac{a_1}{a_2} \neq \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$

Here, $\frac{8}{k} = \frac{5}{10} \neq \frac{9}{15}$

$\therefore k = \frac{8 \times 10}{5} = 16$

\therefore For $k=16$ the system of equations will have no solution.

8) If, $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ then, the system of equations will have infinite solutions.
Here, to get infinite solutions:

$\frac{2x}{k+2} = \frac{3}{6} = \frac{4}{3k+2}$

$\frac{2}{k+2} = \frac{3}{6}$

$k+2 = 4$

$\therefore k = 2$

Section : C

9) No. of books in each bundle = HCF (45, 72).

$72 = 45 \times 1 + 27$

$45 = 27 \times 1 + 18$

$27 = 18 \times 1 + 9$

$18 = 9 \times 2 + 0$

\therefore HCF (45, 72) = 9.

\therefore There are 9 no. of books in each packet.