Sometimes, we must Multiply one or both of the equations by a constant, in order to get two coefficients that are same or but opposite.

Ex 5) $3x + 6y = 6$
$-3(2x - 3y = 4)$

$-6x + 12y = 12$
$+\ -6x + 9y = -12$
$21y = 0$
$\frac{21y}{21} = \frac{0}{21}$
$y = 0$

$2x - 3y = 4$
$2x - 3(0) = 4$
$\frac{2x}{2} = \frac{4}{2}$
$x = 2$

(2, 0)

Ex 6) $8x - 9y = 19$
$9(4x + y = -7)$

$8x - 9y = 19$
$+\ 36x + 9y = -63$
$\frac{44x}{44} = \frac{-44}{44}$
$x = -1$

$4x + y = -7$
$4(-1) + y = -7$
$-4 + y = -7$
$+4 \quad +4$
$y = -3$

(-1, -3)

Ex 7) $4x - 3y - 11 = 0$
$3x - 5y = -11$

$-5(4x - 3y = 11)$
$3(3x - 5y = -11)$
$-20x + 15y = -55$
$+\ 9x - 15y = -33$
$\frac{-11x}{-11} = \frac{-88}{-11}$
$x = 8$

$3(8) - 5y = -11$
$24 - 5y = -11$
$-24 \quad -24$
$-5y = -35$
$\frac{-5y}{-5} = \frac{-35}{-5}$
$y = 7$

(8, 7)

Ex 8) $5x + 7y = -1$
$-22 + 4x = 2y$

$4(5x + 7y = -1)$
$-5(4x - 2y = 22)$
$20x + 28y = -4$
$-20x + 10y = -110$
$\frac{38y}{38} = \frac{-114}{38}$
$y = -3$

$5x + 7(-3) = -1$
$5x - 21 = -1$
$5x = 20$
$x = 4$

(4, -3)

Ex 9) $5(x - y) = 5$
$3(x - y) = 4$

$\frac{5(x-y)}{5} = \frac{5}{5}$
$-3(x - y = 1)$
$3x - 3y = 4$
$-3x + 3y = -3$
$0 = 1$

parallel lines
no solutions

Ex 10) $5(x + y = 7)$
$-5x - 5y = -35$
$5x + 5y = 35$
$0 = 0$

same line
infinite solutions