ALGEBRA HW ②

SOLUTIONS

① $2x + 3y = 0$ ①

$x + y + z = 0$ ②

$3x + 2y - 4z = 9$ ③

$4 \times ② \Rightarrow 4x + 4y + 4z = 0$

$③ \Rightarrow 3x + 2y - 4z = 9$

$7x + 6y = 9$ ④

$-2 \times ① \Rightarrow -4x - 6y = 0$

$④ \Rightarrow 7x + 6y = 9$

$3x = 9$

$\boxed{x = 3}$

Sub in ①

$6 + 3y = 0$

$\boxed{y = -2}$

Sub in ②

$3 - 2 + z = 0$

$\boxed{z = -1}$

② $\frac{2x + 3y}{x + 6y} = \frac{4}{5}$

$\therefore 10x + 15y = 4x + 24y$

$\therefore 6x = 9y$

$\therefore \frac{x}{y} = \frac{9}{6} = \boxed{\frac{3}{2}}$

③ $x - c + 1$ factor $\Rightarrow$

$\Rightarrow x = c - 1$ not

$\therefore (c-1)^2 - 5(c-1) + 5c(c-1) - 6s^2 = 0$

$\therefore c^2 - 2c + 1 - 5c + 5 + 5c^2 - 5c - 6s^2 = 0$

$\therefore 6c^2 - 12c + 6 - 6s^2 = 0$

$\therefore c^2 - 2c + 1 - s^2 = 0$

$\therefore (c-1)^2 = s^2$

$\therefore c - 1 = \pm s$

$\therefore \boxed{c = 1 \pm s}$

④ $x = y - 8$

Sub in ②

$(y-8)^2 + (y-8)(y) + 8 = 0$

$\therefore y^2 - 16y + 64 + y^2 - 8y + 8 = 0$

$\therefore 2y^2 - 24y + 72 = 0$

$\therefore y^2 - 12y + 36 = 0$

$\therefore (y-6)(y-6) = 0$

$\therefore \boxed{y = 6}$

$\therefore x = 6 - 8$

$\boxed{x = -2}$