Solve $2x - 2y - 2z = 2$ ①
$2x - 3y + z = 10$ ②
$x + y - 2z = 0$ ③

$2x - 2y - 2z = 2$
$4x - 6y + 2z = 20$
─────────────
$6x - 8y = 22$

$3x - 4y = 11$ ④

$2x - 2y - 2z = 2$
$-x - y + 2z = 0$
─────────────
$x - 3y = 2$ ⑤

$3x - 4y = 11$
$3x + 9y = -6$
─────────────
$5y = 5$

$y = 1$

$x - 3(1) = 2$
$x - 3 = 2$
$x = 5$

$2(5) - 3(1) + z = 10$
$10 - 3 + z = 10$
$z = 3$

2005

1 (a) Solve the simultaneous equations:

$$\frac{x}{5} - \frac{y}{4} = 0$$

$$3x + \frac{y}{2} = 17$$

(×20) $4x - 5y = 0$

(×2) $6x + y = 34$

$4x - 5y = 0$
(×5) $30x - 5y = 170$
─────────────
$34x = 170$
$x = 5$

$6(5) + y = 34$
$30 + y = 34$
$y = 4$

1

p.12 Example

Solve for x and y the simultaneous equations:

$$\frac{x+1}{2} - \frac{y+3}{3} = 4, \qquad \frac{x+y}{2} - \frac{3}{2} = \frac{1}{2}$$

(x6) $3(x+1) - 2(y+3) = 24$

$3x + 3 - 2y - 6 = 24$

$3x - 2y = 27$

(x2) $2x + y - 3 = 1$

$2x + y = 4$

$3x - 2y = 27$

(x2) $4x + 2y = 8$

────────────

$7x \qquad = 35$

$x = 5$

$2(5) + y = 4$

$10 + y = 4$

$y = -6$

2006

2 (a) Solve the simultaneous equations:

$$y = 2x - 5$$
$$x^2 + xy = 2$$

Sub Linear in and solve

$\Rightarrow \quad x^2 + x(2x - 5) = 2$

$x^2 + 2x^2 - 5x = 2$

$3x^2 - 5x - 2 = 0$

$(3x + 1)(x - 2) = 0$

$3x + 1 = 0 \quad | \quad x - 2 = 0$

$3x = -1 \quad | \quad x = 2$

$x = -\frac{1}{3}$

Sub back into linear

$x = -\frac{1}{3}$

$\Rightarrow \quad y = 2\left(-\frac{1}{3}\right) - 5 = \frac{-2}{3} - 5$

$= \frac{-2}{3} - \frac{15}{3} = -\frac{17}{3} \text{ or } -5\frac{2}{3}$

pt $\left(-\frac{1}{3}, -5\frac{2}{3}\right)$

$x = 2$

$\Rightarrow \quad y = 2(2) - 5 = 4 - 5 = -1$

pt. $(2, -1)$

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