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UAS

① $x + 3y + 2z = 4$
$2x + 7y + 9z = 6$
$2x + 9y + 7z = 4$

$$\sim \left[\begin{array}{ccc|c} 1 & 3 & 2 & 4 \\ 2 & 7 & 9 & 6 \\ 2 & 9 & 7 & 4 \end{array}\right]$$

$b_2 = 2b_1 - b_2$: (2×1)(2×3)(2×2)(2×4)
2 6 4 8
2 7 9 6 −
0 −1 0 2

$b_3 = 2b_1 - b_3$: (2×1)(2×3)(2×2)(2×4)
2 6 4 8
2 9 7 4 −
0 −3 −3 9

$$\left[\begin{array}{ccc|c} 1 & 3 & 2 & 4 \\ 0 & -1 & 0 & 2 \\ 0 & -3 & -3 & 9 \end{array}\right] \sim (-b_2)$$ (0×0)(−1×−1)(0×0)(−2×−2)
0 3 0 −6

$$\left[\begin{array}{ccc|c} 1 & 3 & 2 & 4 \\ 0 & 1 & 0 & -2 \\ 0 & -3 & -3 & 9 \end{array}\right] \sim$$

$b_3 = 3b_2 + b_3$: (3×0)(3×1)(3×0)(3×−2)
0 3 0 −6
0 −3 −3 9 +
0 0 −3 −2

$$\left[\begin{array}{ccc|c} 1 & 3 & 2 & 4 \\ 0 & 1 & 0 & -2 \\ 0 & 0 & -3 & -2 \end{array}\right] b_3 = -(1/3)$$ (0×−1/3)(0×−1/3)(−3×−1/3)(−2×−1/3)
0 0 1 2/3

$$\left[\begin{array}{ccc|c} 1 & 3 & 2 & 4 \\ 0 & 1 & 0 & -2 \\ 0 & 0 & 1 & 2/3 \end{array}\right]$$

$y = -2$, $z = 2/3$ → $x + 3y + 2z = 4$

$x + 3(-2) + 2(2/3) = 4$

$x - 6 + 4/3 = 4$

$x = 4 + 6 - 4/3$

$x = 10 - 4/3$

$x = 30/3 - 4/3$

$= 26/3$

jadi $x = 26/3$, $y = -2$, $z = 2/3$

② $2x - 3y + 2z = 3$
$x - y - 2z = -1$
$-x + 2y - 3z = -4$

$$\sim \left[\begin{array}{ccc|c} 2 & -3 & 2 & 3 \\ 1 & -1 & -2 & -1 \\ -1 & 2 & -3 & -4 \end{array}\right] \sim \left[\begin{array}{ccc|c} 1 & -1 & -2 & -1 \\ -1 & 2 & -3 & -4 \\ 2 & -3 & 2 & 3 \end{array}\right]$$

$b_2 = b_2 + b_1$

$b_3 = 2b_2 + b_3$

$b_2 = (-1+1)(2+-1)(-3+-2)(-4+-1)$
0 1 −5 −5

$b_3 = (2×-1)(2×2)(2×-3)(2×4)$
2 −3 2 −3 +
0 −1 −4 11

$$\left[\begin{array}{ccc|c} 1 & -1 & -2 & -1 \\ 0 & 1 & -5 & -5 \\ 0 & 1 & -4 & 11 \end{array}\right] b_3 = -1b_2 + b_3$$ (0×0)(−1×1)(−1×−5)(−1×−5)
0 1 −4 11 +
0 0 1 16

$$\sim \left[\begin{array}{ccc|c} 1 & -1 & -2 & -1 \\ 0 & 1 & -5 & -5 \\ 0 & 0 & 1 & 16 \end{array}\right] \sim$$

$b_2 = 5b_3 + b_2$: (5×0)(5×0)(5×1)(5×16)
0 0 5 80
0 1 −5 −5 +
0 1 0 75

$$\left[\begin{array}{ccc|c} 1 & -1 & -2 & -1 \\ 0 & 1 & 0 & 75 \\ 0 & 0 & 1 & 16 \end{array}\right] \sim$$

$b_1 = 2b_3 + b_1$: (2×0)(2×0)(2×1)(2×16)
0 0 2 32
1 −1 −2 −1 +
1 −1 0 31

$$\left[\begin{array}{ccc|c} 1 & -1 & 0 & 31 \\ 0 & 1 & 0 & 75 \\ 0 & 0 & 1 & 16 \end{array}\right]$$

$b_1 = b_2 + b_1$: (0+1)(1+−1)(0+0)(75+31)
1 0 0 106

$$\left[\begin{array}{ccc|c} 1 & 0 & 0 & 106 \\ 0 & 1 & 0 & 75 \\ 0 & 0 & 1 & 16 \end{array}\right]$$

jadi $x = 106$, $y = 75$, $z = 16$

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③ $x+y=5$
$y=x+1$ →

$x+y=5$
$x+x+1=5$
$2x+1=5$
$2x=5-1$
$x=4/2$
$x=2$

$y=x+1$
$y=2+1$
$y=3$

④ $b+4m=140.000$
$2b+m=105.000$
$2b+6m=?$ →

$b+4m=140.000 \mid \times 2 \mid 2b+8m=280.000$
$2b+m=105.000 \mid \times 1 \mid 2b+m=105.000 -$
$7m=175.000$
$m=175.000/7$
$m=25.000$

$2b+m=105000$
$2b=105.000-m$
$2b=105.000-25.000$
$2b=80.000$
$b=80.000/2$
$b=40.000$

$b=40.000$
$m=25.000$
$2b+6m=2(40.000)+6(25.000)$
$=80.000+150.000$
$=230.000$

Jadi harga 2kg beras + 6liter minyak goreng = 230.000

⑤ $3c+2b=280.000 \mid \times 3 \mid 9c+6b=840.000$
$c+3b=210.000 \mid \times 2 \mid 2c+6b=420.000 -$
$7c=420.000$
$c=420.000/7$
$c=60.000$

Jadi harga 1 Celana = 60.000