2.5.21

02.12.22

m) $\begin{cases} 3x - y + z = 29 \\ x + 3y + 30z = 6 \\ x - y + z = 17 \end{cases}$ | ① y ·3 ·1 | ② y ·1 ·(−1

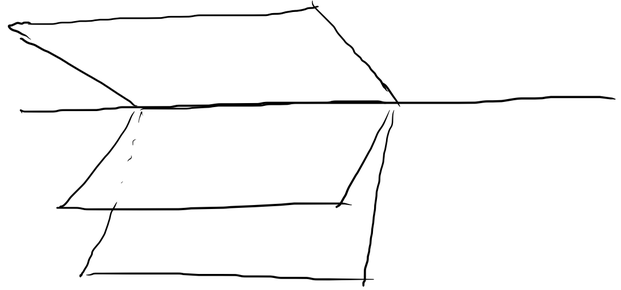
① ② $\begin{cases} 10x + 33z = 93 \\ 2x = 12 \\ x - y + z = 17 \end{cases}$

$\Leftrightarrow$ $\begin{cases} x = 6 \\ 33z = 33 \\ x - y + z = 17 \end{cases}$

$\Leftrightarrow$ $\begin{cases} x = 6 \\ z = 1 \\ y = -10 \end{cases}$

$S = \{(6; -10; 1)\}$

t) $\left\{\begin{array}{rrrl} x+ & y+ & z=9 & \\ x+2y+ & 3z=14 & & \\ 3x+2y+ & z=22 & & \end{array}\right.$ $\left|\begin{array}{l} \cdot(-1) \\ \cdot\ 1 \\ \end{array}\right.$ $\left|\begin{array}{l} \times \\ \cdot(-3) \\ 1 \end{array}\right.$ $\times$



$\Leftrightarrow$ $\left\{\begin{array}{rrrl} & y+2z & =5 & \\ -4y & -8z & =-20 & \\ x+y & +z & =9 & \end{array}\right.$

$\Leftrightarrow$ $\left\{\begin{array}{rrrl} & y+2z & =5 & \\ x+ & y+z & =9 & \end{array}\right.$ 2 équations, 3 inconnues } 1 degré de liberté

$\Leftrightarrow$ $\left\{\begin{array}{rrrl} & y= & -2z+5 & \\ x+ & y= & -z+9 & \end{array}\right.$ $\left|\begin{array}{l} \cdot(-1) \\ \cdot 1 \end{array}\right.$

$\Leftrightarrow$ $\left\{\begin{array}{l} y=-2z+5 \\ x=z+4 \end{array}\right.$

il y a une infinité de solutions

$$S=\left\{ (t+4\,;-2t+5\,;t) \;\middle|\; t\in\mathbb{R} \right\}$$

p) $\left\{\begin{array}{l} x+2y-3z=0 \\ 5x-3y+z=0 \end{array}\right.$ $\left|\begin{array}{l} z \\ \cdot 1 \\ \cdot 3 \end{array}\right.$

$\Leftrightarrow \left\{\begin{array}{l} 16x-7y=0 \\ x+2y-3z=0 \end{array}\right.$

$\Leftrightarrow \left\{\begin{array}{l} 16x=7y \\ x-3z=-2y \end{array}\right.$

$\Leftrightarrow \left\{\begin{array}{l} x=\frac{7}{16}y \\ \frac{7}{16}y-3z=-2y \end{array}\right.$

$\Leftrightarrow \left\{\begin{array}{l} x=\frac{7}{16}y \\ z=\frac{13}{16}y \end{array}\right.$

$L=\left\{\left(7t\ ;16t;\ 13t\right) \mid t\in\mathbb{R}\right\}$

$\left\{\begin{array}{l} x-3z=-2y \\ 5x+z=3y \end{array}\right.$ $\left|\begin{array}{l} \cdot 5 \\ \cdot(-1) \end{array}\right.$

$x=$

$z=$

$\Leftrightarrow \left\{\begin{array}{l} x=\frac{7}{16}y \\ -3z=\underbrace{-2y-\frac{7}{16}y}_{-\frac{39}{16}y} \end{array}\right.$