

$$2^{\circ} \quad x + (-(x-5)) = 7$$

$$\Leftrightarrow 0 = 2 \quad \downarrow$$

$$3^{\circ} \quad -x + (x-5) = 7$$

$$\Leftrightarrow 0 = 12 \quad \downarrow$$

$$4^{\circ} \quad -x + (-(x-5)) = 7$$

$$\Leftrightarrow -2x = 2 \quad | : (-2) \quad \Leftrightarrow x = -1$$

Tark. $x=6$: $|6| + |6-5| = 7 \quad \Leftrightarrow 6+1=7 \%$

$x=-1$: $|-1| + |-1-5| = 7 \quad \Leftrightarrow 1+6=7 \%$

Vast. $x=-1$ tai $x=6$

3. yhtälöryhmä

3.2 a) $\begin{cases} 2x+5y=0 & | \cdot 3 \\ 3x+7y=1 & | \cdot (-2) \end{cases} \Leftrightarrow \begin{cases} 6x+15y=0 \\ -6x-14y=-2 \end{cases}$

$$\underline{y = -2}$$

$$\Rightarrow 2x + 5 \cdot (-2) = 0 \quad \Leftrightarrow 2x = 10 \quad | : 2 \quad \Leftrightarrow \underline{x = 5}$$

b) $\begin{cases} 2x-3y=2 & | \cdot 2 \\ -4x+2y=-3 \end{cases} \Leftrightarrow \begin{cases} 4x-6y=4 \\ -4x+2y=-3 \end{cases}$

$$\underline{-4y = 1 \quad | : (-4) \quad \Leftrightarrow y = -\frac{1}{4}}$$

$$2x - 3 \cdot (-\frac{1}{4}) = 2 \quad | \cdot 4$$

$$\Leftrightarrow 8x + 3 = 8 \quad \Leftrightarrow 8x = 5 \quad | : 8 \quad \Leftrightarrow \underline{x = \frac{5}{8}}$$

3.8 $\begin{cases} 3x-2t=1 & (1) \\ -x+t=2 & (2) \\ 4x-3t=1 & (3) \end{cases}$

(1) $\dot{+}$ (2) : $\begin{cases} 3x-2t=1 \\ -x+t=2 \end{cases} \xrightarrow{| \cdot 2} \begin{cases} 3x-2t=1 \\ -2x+2t=4 \end{cases}$

$$\underline{x = 5} \quad \Rightarrow -5 + t = 2 \quad \Leftrightarrow t = 7$$

Tark. (3) : $4 \cdot 5 - 3 \cdot 7 = 1 \quad \Leftrightarrow 20 - 21 = 1 \quad \downarrow$

Vast. ei ratkaisua

3.5 $\begin{cases} 2x+3y-z=-1 & (1) \\ x-5y+2z=16 & (2) \\ 3x+y+z=12 & (3) \end{cases}$

(1)+(3) : $\begin{cases} 5x+4y=11 \\ 5x+y=14 \end{cases} \xrightarrow{| \cdot (-1)} \begin{cases} 5x+4y=11 \\ -5x-y=14 \end{cases}$

$$3y = -3 \quad | : 3 \quad \Leftrightarrow \underline{y = -1} \quad \Rightarrow 5x - 1 = 14 \quad \Leftrightarrow 5x = 15 \quad \Leftrightarrow \underline{x = 3}$$

(3) : $3 \cdot 3 - 1 + z = 12 \quad \Leftrightarrow \underline{z = 4}$