$$\begin{cases} 3(z-x)=y+3(x-3) \\ 2(x+y)-3=z \Rightarrow \boxed{z=2x+2y-3} \\ 5x-4(y+z+1)=-4 \end{cases}$$

Individuiamo la variabile + comoda (possibilmente con coeff. 1)

Sostituiamo z alle altre 2 equazioni e "congeliamo" questa equazione

$$\begin{cases} \text{idem} \\ 3(2x+2y-3-x)=y+3x-9 \\ 5x-4(y+2x+2y-3+1)=-4 \end{cases}$$

$$\begin{cases} \text{idem} \\ 3x+6y-9=y+3x-9 \\ 5x-4(3y+2x-2)=-4 \end{cases} \Rightarrow 6y=y \Rightarrow \frac{8}{8}y=\frac{0}{5} \Rightarrow y=0$$

$$\begin{cases} \text{idem} \\ y=0 \\ 5x-12y-8x+8=-4 \end{cases} \Rightarrow -3x+8=-4 \Rightarrow -3x=-8-4$$

$$\begin{cases} \text{idem} \\ y=0 \\ \frac{-3x}{-3}=\frac{-12}{-3} \quad x=4 \end{cases}$$

$$\begin{cases} z=2x+2y-3 \Rightarrow z=8+0-3=2\cdot 5 \\ y=0 \\ x=4 \end{cases}$$

$$S=(4;0;5)$$

$$(2-\sqrt{20})^2-(\sqrt{75}-3)(2-\sqrt{125})=$$

$$=(4+20-4\sqrt{20})-(5\cdot\sqrt{3}-3)(2-5\cdot\sqrt{5})=$$

$$=24-8\cdot\sqrt{5}-(10\cdot\sqrt{3}-25\sqrt{15}-6+15\sqrt{5})=$$

$$=24-8\sqrt{5}-10\sqrt{3}+25\sqrt{15}+6-15\sqrt{5}=$$

$$=30-23\sqrt{5}-10\sqrt{3}+25\sqrt{15}$$

$$\sqrt{\frac{50}{9}}-\sqrt{\frac{25}{8}}=$$

$$=\frac{5}{3}\sqrt{2}-\frac{5}{2\sqrt{2}}\cdot\frac{\sqrt{2}}{\sqrt{2}}=$$

$$=\frac{5}{3}\sqrt{2}-\frac{5\sqrt{2}}{4}=$$

$$=\left(\frac{5}{3}-\frac{5}{4}\right)\sqrt{2}=$$

$$=\left(\frac{20-15}{12}\right)\sqrt{2}=\frac{5}{12}\sqrt{2}$$

$$\frac{4-3\sqrt{2}}{3+5\sqrt{2}}\cdot\frac{3-5\sqrt{2}}{3-5\sqrt{2}}=$$

$$=\frac{12-20\sqrt{2}-9\sqrt{2}+15(2)}{9-\cancel{15\sqrt{2}}+\cancel{15\sqrt{2}}-25(2)}=$$

$$=\frac{42-29\sqrt{2}}{-41}$$

$x^2 - 3 = 0$

$x^2 = 3$

$x = \sqrt{3} \vee x = -\sqrt{3}$

$x^2 + 3 = 0$

$x^2 = -3$

$x = \pm\sqrt{-3} \notin \mathbb{R}$ equazione impossibile

$S = \emptyset$

$(x-3)^2 = 0$

$x^2 + 9 - 6x = 0$

$x^2 - 3x - 3x + 9 = 0$

$x(x-3) - 3(x-3) = 0$ ← lavoro inutile

$(x-3)(x-3) = 0$ Si usa la legge di annullamento del prodotto

$x - 3 = 0$ oppure

$x = 3$ doppia

$S = \{3 \text{ (doppia)}\}$

$3x^2 + 2x = 0$

$x(3x+2) = 0$

$x = 0 \vee 3x + 2 = 0$

$x = 0 \vee x = -\frac{2}{3}$

$S = \left\{-\frac{2}{3}; 0\right\}$

$3x^2 - 7x + 4 = 0$

$a = 3$

$b = -7$

$c = 4$

$\Delta = b^2 - 4(a \cdot c) =$

$= (-7)^2 - 4(3)\cdot(4) =$

$= 49 - 48 = 1$

$x_{1,2} \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{7 \pm \sqrt{1}}{6} = \begin{cases} \frac{7+1}{6} = \frac{8}{6} = \frac{4}{3} \\ \frac{7-1}{6} = \frac{6}{6} = 1 \end{cases}$

$S = \left\{1; \frac{4}{3}\right\}$

$3x^2 - 3x - 4x + 4 = 0 \Rightarrow 3x(x-1) - 4(x-1) = 0 \quad (x-1)(3x-4) = 0 \Rightarrow \begin{matrix} x = 1 \vee \\ x = 4/3 \end{matrix}$