

3

Resolució:

tenint en compte tot això, puc utilitzar la regla de Cramer.

Pasos opcionals

$$|A| = 4(2a^2 + 13a - 15) = 4 \cdot 2 \cdot (a^2 + \frac{13}{2}a - \frac{15}{2}) = 8 \cdot (a^2 + \frac{13}{2}a - \frac{15}{2}) =$$

o' si $a=1$ o $a=-\frac{15}{2}$

Ho subia del principi de l'exercici

$$= 8 \cdot (a-1)(a+\frac{15}{2}) \rightarrow |A| = 8(a-1)(a+\frac{15}{2}) \neq 0$$

↑ Probablement després em servirà per fer alguna simplificació

(la ves:

$$x = \frac{\Delta_1}{|A|} = \frac{\begin{vmatrix} 4 & -2 & -4 \\ 3 & a & 0 \\ -5a & 5 & 8a \end{vmatrix}}{8(a-1)(a+\frac{15}{2})} = \frac{\begin{vmatrix} 4 & -2 & -4 \\ 3 & a & 0 \\ 3a & 5-4a & 0 \end{vmatrix}}{8(a-1)(a+\frac{15}{2})} = \frac{-4 \cdot \begin{vmatrix} 3 & a \\ 3a & 5-4a \end{vmatrix}}{8(a-1)(a+\frac{15}{2})} =$$

$$= \frac{-4 \cdot (15 - 12a - 3a^2)}{8(a-1)(a+\frac{15}{2})} = \frac{12(a^2 + 4a - 5)}{8(a-1)(a+\frac{15}{2})} = \frac{3(a-1)(a+5)}{2(a+\frac{15}{2})} = \frac{3(a+5)}{2(a+\frac{15}{2})}$$

Heu un -3 factor comú fora del

factoritzo del

Desenvolupo del per F_2

$$y = \frac{\Delta_2}{|A|} = \frac{\begin{vmatrix} 1 & 4 & -4 \\ 3 & 3 & 0 \\ 1 & -5a & 8a \end{vmatrix}}{8(a-1)(a+\frac{15}{2})} = \frac{\begin{vmatrix} 1 & 4 & -4 \\ 3 & 3 & 0 \\ 1 & -5a & 8a \end{vmatrix}}{8(a-1)(a+\frac{15}{2})} = \frac{3 \cdot (-1) \cdot \begin{vmatrix} 3 & -4 \\ -5a & 8a \end{vmatrix}}{8(a-1)(a+\frac{15}{2})} =$$

$$= \frac{-3(24a - 20a - 4)}{8(a-1)(a+\frac{15}{2})} = \frac{-3(4a - 4)}{8(a-1)(a+\frac{15}{2})} = \frac{-3 \cdot 4(a-1)}{8(a-1)(a+\frac{15}{2})} = \frac{-3}{2(a+\frac{15}{2})}$$

$$z = \frac{\Delta_3}{|A|} = \frac{\begin{vmatrix} 1 & -2 & 4 \\ 3 & a & 3 \\ 1 & 5 & -5a \end{vmatrix}}{8(a-1)(a+\frac{15}{2})} = \frac{\begin{vmatrix} 1 & -2 & 4 \\ 3 & a & 3 \\ 0 & a+6 & -9 \\ 0 & 7 & -5a-4 \end{vmatrix}}{8(a-1)(a+\frac{15}{2})} = \frac{1 \cdot \begin{vmatrix} a+6 & -9 \\ 7 & -5a-4 \end{vmatrix}}{8(a-1)(a+\frac{15}{2})} =$$

$$= \frac{(a+6)(-5a-4) + 63}{8(a-1)(a+\frac{15}{2})} = \frac{-5a^2 - 4a - 30a - 24 + 63}{8(a-1)(a+\frac{15}{2})} = \frac{-5a^2 - 34a + 39}{8(a-1)(a+\frac{15}{2})} =$$

$$= \frac{(a-1)(-5a-39)}{8(a-1)(a+\frac{15}{2})} = \frac{-5(a+\frac{39}{5})}{8(a+\frac{15}{2})}$$

El numerador es divisible entre $a-1$:

$$\begin{array}{r|rrr} 1 & -5 & -34 & 39 \\ & & -5 & -39 \\ \hline & -5 & -39 & 0 \end{array}$$

Resum:

$$x = \frac{3(a+5)}{2(a+\frac{15}{2})}$$

$$y = \frac{-3}{2(a+\frac{15}{2})}$$

$$z = \frac{-5(a+\frac{39}{5})}{8(a+\frac{15}{2})}$$