SISTEMI LINEARI LETTERALI

Esercizi svolti dall'allievo Parciante Antonio classe 2A L. Scientifico

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$$\begin{cases} x + y = 2a \\ x - y = a \end{cases}$$

$$D = \begin{vmatrix} 1 & 1 \\ 1 & -1 \end{vmatrix} = -1 - 1 = -2$$

$$D_x = \begin{vmatrix} 2a & 1 \\ a & -1 \end{vmatrix} = -2a - a = -3a$$

$$D_y = \begin{vmatrix} 1 & 2a \\ 1 & a \end{vmatrix} = a - 2a = -a$$

Poiché $D \neq 0$

$\Rightarrow \left(x = \dfrac{D_x}{D} = \dfrac{-3a}{-2} = \dfrac{3}{2}a \; ; \; y = \dfrac{D_y}{D} = \dfrac{-a}{-2} = \dfrac{a}{2} \right)$

PARAMETRO	TIPO	SOLUZIONE
$\forall a \in R$	DET.	$x = \frac{3}{2}a$ $y = \frac{a}{2}$

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$$\begin{cases} x+y=a \\ ax+(2a+1)y=-a \end{cases}$$

$$D=\begin{vmatrix} 1 & 1 \\ a & 2a+1 \end{vmatrix} = 2a+1-a = a+1$$

$$D_x=\begin{vmatrix} a & 1 \\ -a & 2a+1 \end{vmatrix} = a(2a+1)+a = 2a^2+a+a =$$

$$= 2a^2+2a = 2a(a+1)$$

$$D_y=\begin{vmatrix} 1 & a \\ a & -a \end{vmatrix} = -a-a^2 = -(a+a^2) = -a(a+1)$$

Se $D=0$ cioè $a+1=0$; $a=-1$ $\begin{cases} 0x=0 \\ 0y=0 \end{cases}$ S. INDET.

Se $D\neq 0$ cioè $a+1\neq 0$; $a\neq -1$

$$\Rightarrow \left(x=\frac{D_x}{D}=\frac{2a\cancel{(a+1)}}{\cancel{a+1}}=2a\ ; \quad y=\frac{D_y}{D}=\frac{-a\cancel{(a+1)}}{\cancel{a+1}}=-a \right)$$

PARAMETRO	TIPO	SOL.
$a=-1$	INDET.	∞
$a \neq -1$	DET.	$x=2a$ $y=-a$

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$$\begin{cases} x - ay = 0 \\ x - (a+1)y = -a \end{cases}$$

$$D = \begin{vmatrix} 1 & -a \\ 1 & -(a+1) \end{vmatrix} = \cancel{-a} - 1 \cancel{+a} = -1$$

$$D_x = \begin{vmatrix} 0 & -a \\ -a & -(a+1) \end{vmatrix} = 0 - a^2 = -a^2$$

$$D_y = \begin{vmatrix} 1 & 0 \\ 1 & -a \end{vmatrix} = -a - 0 = -a$$

Poiché $D \neq 0$

$$\Rightarrow \quad \left(x = \frac{D_x}{D} = \frac{-a^2}{-1} = a^2 ; \right.$$

$$\left. y = \frac{D_y}{D} = \frac{-a}{-1} = a \right)$$

PARAMETRO	TIPO	SOLUZIONE
$\forall a \in \mathbb{R}$	DET.	$x = a^2$; $y = a$

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$$\begin{cases} (a+3)x - ay = 1 \\ ax - (a+1)y = -1 \end{cases}$$

$$D = \begin{vmatrix} a+3 & -a \\ a & -(a+1) \end{vmatrix} = -(a+3)(a+1) + a =$$

$$= -(a^2 + a + 3a + 3) + a^2 =$$

$$= \cancel{-a^2} - a - 3a - 3 \cancel{+a^2} =$$

$$= -4a - 3 = -(4a+3)$$

$$D_x = \begin{vmatrix} 1 & -a \\ -1 & -(a+1) \end{vmatrix} = -a - 1 - a = -2a - 1 = -(2a+1)$$

$$D_y = \begin{vmatrix} a+3 & 1 \\ a & -1 \end{vmatrix} = -a - 3 - a = -2a - 3 = -(2a+3)$$

Se $D = 0$ cioé $-(4a+3) = 0$; $-4a - 3 = 0$; $a = -\frac{3}{4}$ $\begin{cases} D_x = \frac{1}{2} \\ D_y = -\frac{3}{2} \end{cases}$

Se $D \neq 0$ cioè $-(4e+3) \neq 0$; $-4e-3 \neq 0$; $e \neq -\frac{3}{4}$

$$\Rightarrow \begin{cases} x = \dfrac{D_x}{D} = \dfrac{-(2e+1)}{-(4e+3)} = \dfrac{2e+1}{4e+3}; \\ \\ y = \dfrac{D_y}{D} = \dfrac{-(2e+3)}{-(4e+3)} = \dfrac{2e+3}{4e+3} \end{cases}$$

PARAMETRO	TIPO	SOLUZIONE
$e = -\frac{3}{4}$	IMPOSS.	$\emptyset$
$e \neq -\frac{3}{4}$	DET.	$x = \frac{2e+1}{4e+3}$ $y = \frac{2e+3}{4e+3}$

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$$\begin{cases} x - (m+1)y = 2 \\ x + y = m^2 + m \end{cases}$$

$$D = \begin{vmatrix} 1 & -(m+1) \\ 1 & 1 \end{vmatrix} = 1 + m + 1 = m + 2$$

$$D_x = \begin{vmatrix} 2 & -(m+1) \\ m^2+m & 1 \end{vmatrix} = 2 + (m^2+m)(m+1) =$$

$$= 2 + (m^3 + m^2 + m^2 + m) =$$

$$= 2 + m^3 + 2m^2 + m =$$

$$= m(m^2+1) + 2(m^2+1) =$$

$$= (m+2)(m^2+1)$$

$$D_y = \begin{vmatrix} 1 & 2 \\ 1 & m^2+m \end{vmatrix} = m^2+m-2 = (m+2)(m-1)$$

Se $D=0$ cioé $m+2=0$; $m=-2$ $\begin{cases} 0x=0 \\ 0y=0 \end{cases}$ S. INDET.

Se $D \neq 0$ cioé $m+2 \neq 0$; $m \neq -2$

$$\Rightarrow \begin{cases} x = \dfrac{D_x}{D} = \dfrac{(m^2+1)\cancel{(m+2)}}{\cancel{m+2}} = m^2+1, \\ y = \dfrac{D_y}{D} = \dfrac{\cancel{(m+2)}(m-1)}{\cancel{m+2}} = m-1 \end{cases}$$

PARAMETRO	TIPO	SOL.
$m=-2$	INDET.	∞
$m \neq -2$	DET.	$x=m^2+1$ $y=m-1$

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$$\begin{cases} mx + my = -1 \\ 2mx + (m-1)y = 1 \end{cases}$$

$$D = \begin{vmatrix} m & m \\ 2m & m-1 \end{vmatrix} = m^2 - m - 2m^2 = -m^2 - m = -(m^2 + m) = -m(m+1)$$

$$D_x = \begin{vmatrix} -1 & m \\ 1 & m-1 \end{vmatrix} = -m + 1 - m = -2m + 1$$

$$D_y = \begin{vmatrix} m & -1 \\ 2m & 1 \end{vmatrix} = m + 2m = 3m$$

Se $D = 0$ cioè $-m(m+1) = 0$ $\begin{cases} m = 0 \begin{cases} 0x = 1 \\ 0y = 0 \end{cases} & \text{S. IMPOSS.} \\ m = -1 \begin{cases} 0x = 3 \\ 0y = -3 \end{cases} & \text{S. IMPOSS.} \end{cases}$

Se $D \neq 0$ cioè $-m(m+1) \neq 0$; $m \neq 0 \wedge m \neq -1$

$$\Rightarrow \left(x = \frac{D_x}{D} = \frac{-2m+1}{-m(m+1)} = -\frac{-2m+1}{m^2+m} = \frac{2m-1}{m^2+m} \right. ;$$

$$\left. y = \frac{D_y}{D} = \frac{3\cancel{m}}{-\cancel{m}(m+1)} = -\frac{3}{m+1} \right)$$

PARAMETRO	TIPO	SOL.
$m=0 \vee m=-1$	IMPOSS.	$\emptyset$
$m \neq 0 \wedge m \neq -1$	DET.	$x = \frac{2m-1}{m^2+m}$ $y = -\frac{3}{m+1}$

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$$\begin{cases} (2-a)x - y = 1 \\ 3x - (a+2)y = 3 \end{cases}$$

$$D = \begin{vmatrix} 2-a & -1 \\ 3 & -(a+2) \end{vmatrix} = -(2-a)(a+2)+3 =$$

$$= (a-2)(a+2)+3 = a^2-4+3 =$$

$$= a^2-1 = (a+1)(a-1)$$

$$D_x = \begin{vmatrix} 1 & -1 \\ 3 & -(a+2) \end{vmatrix} = -a-2+3 = 1-a$$

$$D_y = \begin{vmatrix} 2-a & 1 \\ 3 & 3 \end{vmatrix} = 6-3a-3 = 3-3a = 3(1-a)$$

Se $D = 0$ cioé $(a+1)(a-1)=0$ $\begin{cases} a=1 \begin{cases} 0x=0 \\ 0y=0 \end{cases} & \text{S. INDET.} \\ a=-1 \begin{cases} 0x=2 \\ 0y=6 \end{cases} & \text{S. IMPOSS.} \end{cases}$

Se $D \neq 0$ cioé $(a+1)(a-1) \neq 0$; $a \neq \pm 1$

$$\Rightarrow \left(x = \frac{D_x}{D} = \frac{1-a}{(a+1)(a-1)} = -\frac{\cancel{a-1}}{(a+1)\cancel{(a-1)}} = -\frac{1}{a+1} ;\right.$$

$$\left. y = \frac{D_y}{D} = \frac{3(1-a)}{(a+1)(a-1)} = -\frac{3\cancel{(a-1)}}{(a+1)\cancel{(a-1)}} = -\frac{3}{a+1} \right)$$

PARAMETRO	TIPO	SOL.
$a = 1$	INDET.	∞
$a = -1$	IMPOSS.	$\emptyset$
$a \neq \pm 1$	DET.	$x = -\frac{1}{a+1}$ $y = -\frac{3}{a+1}$

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$$\begin{cases} tx-(t-2)y=-1 \\ x+ty=-2 \end{cases}$$

$$D=\begin{vmatrix} t & -(t-2) \\ 1 & t \end{vmatrix}=t^2+t-2=(t+2)(t-1)$$

$$D_x=\begin{vmatrix} -1 & -(t-2) \\ -2 & t \end{vmatrix}=-t-2(t-2)=-t-2t+4=$$
$$=4-3t$$

$$D_y=\begin{vmatrix} t & -1 \\ 1 & -2 \end{vmatrix}=-2t+1=1-2t$$

Se $D=0$ cioé $(t+2)(t-1)=0$
- $t=-2$: $0x=10$, $0y=5$ — S. IMP.
- $t=1$: $0x=1$, $0y=-1$ — S. IMP.

Se $D\neq 0$ cioé $(t+2)(t-1)\neq 0$, $t\neq -2 \wedge t\neq 1$

$$\Rightarrow \left(x=\frac{D_x}{D}=\frac{4-3t}{(t+2)(t-1)}=\frac{4-3t}{t^2+t-2}; \quad y=\frac{D_y}{D}=\frac{1-2t}{(t+2)(t-1)}=\frac{1-2t}{t^2+t-2} \right)$$

PARAMETRO	TIPO	SOLUZIONE
$t=-2 \vee t=1$	IMP.	$\emptyset$
$t\neq -2 \wedge t\neq 1$	DET	$x=\frac{4-3t}{t^2+t-2}$ $y=\frac{1-2t}{t^2+t-2}$

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$$\begin{cases}(x+y)(a-2)=1\\(x-y)(a-1)=1\end{cases}\qquad\begin{cases}ax-2x+ay-2y=1\\ax-x-ay+y=1\end{cases}\qquad\begin{cases}(a-2)x+(a-2)y=1\\(a-1)x-(a-1)y=1\end{cases}$$

$$D=\begin{vmatrix}a-2 & a-2\\ a-1 & -(a-1)\end{vmatrix}=-(a-2)(a-1)-(a-1)(a-2)=$$
$$=-2(a-2)(a-1)$$

$$D_x=\begin{vmatrix}1 & a-2\\ 1 & -(a-1)\end{vmatrix}=-a+1-a+2=3-2a$$

$$D_y=\begin{vmatrix}a-2 & 1\\ a-1 & 1\end{vmatrix}=\cancel{a}-2-\cancel{a}+1=-1$$

Se $D=0$ cioé $-2(a-2)(a-1)=0$ $\begin{cases}a=2 & \begin{cases}0x=-1\\0y=-1\end{cases} \text{ S. IMP.}\\ a=1 & \begin{cases}0x=1\\0y=-1\end{cases} \text{ S. IMP.}\end{cases}$

Se $D\neq 0$ cioé $-2(a-2)(a-1)\neq 0$; $a\neq 2 \wedge a\neq 1$

$$\Rightarrow \left(x=\frac{D_x}{D}=\frac{3-2a}{-2(a-2)(a-1)}=-\frac{3-2a}{2a^2-6a+4}=\frac{2a-3}{2a^2-6a+4}\right. ;$$

$$y = \frac{D_y}{D} = \frac{-1}{-2(a-2)(a-1)} = \frac{1}{2a^2-6a+4}$$

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PAR.	TIPO	SOL.
$a=2 \vee a=1$	IMP.	$\emptyset$
$a \neq 2 \wedge a \neq 1$	DET.	$x = \frac{2a-3}{2a^2-6a+4}$ $y = \frac{1}{2a^2-6a+4}$

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$$\begin{cases} \frac{x}{m} - \frac{y}{m+1} = 1 \\ 2x+y=-1 \end{cases}$$

C.E: $m \neq 0 \wedge m \neq -1$
m.c.m: $m(m+1)$

$$\begin{cases} (m+1)x - my = m^2+m \\ 2x+y=-1 \end{cases}$$

$$D = \begin{vmatrix} m+1 & -m \\ 2 & 1 \end{vmatrix} = m+1+2m = 3m+1$$

$$D_x = \begin{vmatrix} m^2+m & -m \\ -1 & 1 \end{vmatrix} = m^2 \cancel{+m} \cancel{-m} = m^2$$

$$D_y = \begin{vmatrix} m+1 & m^2+m \\ 2 & -1 \end{vmatrix} = -m-1-2(m^2+m) =$$

$$= -m-1-2m^2-2m =$$

$$= -(2m^2+3m+1) = -(2m^2+2m+m+1) =$$

$$= -\left[2m(m+1) + (m+1)\right] =$$ 13

$$= -(2m+1)(m+1)$$

Se $D = 0$ cioé $3m+1=0$, $m = -\frac{1}{3}$ $\begin{cases} 0x = \frac{1}{9} \\ 0y = -\frac{2}{9} \end{cases}$ S. IMP.

Se $D \neq 0$ cioé $3m+1 \neq 0$, $m \neq -\frac{1}{3}$

$$\Rightarrow \left(x = \frac{D_x}{D} = \frac{m^2}{3m+1} \; ; \; y = \frac{D_y}{D} = -\frac{(2m+1)(m+1)}{3m+1} \right)$$

PARAMETRO	TIPO	SOLUZIONE
$m=0 \vee m=-1$	PERDESIG	NESSUNA
$m = -\frac{1}{3}$	IMP.	$\emptyset$
$m \neq 0 \wedge m \neq -1 \wedge m \neq -\frac{1}{3}$	DET.	$x = \frac{m^2}{3m+1}$ $y = -\frac{(2m+1)(m+1)}{3m+1}$

$$\begin{cases} \dfrac{x}{a+1} + \dfrac{y}{a-1} = \dfrac{1}{a^2-1} \\ 2x+y=3 \end{cases} \quad \begin{cases} \dfrac{x}{a+1} + \dfrac{y}{a-1} = \dfrac{1}{(a+1)(a-1)} \\ 2x+y=3 \end{cases}$$

C.E: $a \neq \pm 1$

m.c.m: $(a+1)(a-1)$

$$\begin{cases} (a-1)x + (a+1)y = 1 \\ 2x+y=3 \end{cases}$$

$$D = \begin{vmatrix} a-1 & a+1 \\ 2 & 1 \end{vmatrix} = a-1-2a-2 = -a-3 = -(a+3)$$

$$D_x = \begin{vmatrix} 1 & a+1 \\ 3 & 1 \end{vmatrix} = 1-3a-3 = -3a-2 = -(3a+2)$$

$$D_y = \begin{vmatrix} a-1 & 1 \\ 2 & 3 \end{vmatrix} = 3a-3-2 = 3a-5$$

Se $D=0$ cioé $-(a+3)=0$; $a=-3 \begin{cases} 0x=7 \\ 0y=-14 \end{cases}$ S. IMP.

Se $D \neq 0$ cioé $-(a+3) \neq 0$; $a \neq -3$

$\Rightarrow \left(x = \dfrac{D_x}{D} = \dfrac{-(3a+2)}{-(a+3)} = \dfrac{3a+2}{a+3}, \right.$

$\left. y = \dfrac{D_y}{D} = \dfrac{3a-5}{-(a+3)} = -\dfrac{3a-5}{a+3} = \dfrac{5-3a}{a+3} \right)$

PARAMETRO	TIPO	SOLUZIONE
$a = \pm 1$	PERDE SIG.	NESSUNA
$a = -3$	IMPOSS.	$\emptyset$
$a \neq \pm 1 \wedge a \neq -3$	DET.	$x = \frac{3a+2}{a+3}$ $y = \frac{5-3a}{a+3}$

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$$\begin{cases} x + (a-1)y = 3-a \\ \frac{x}{a} + 2y = -4 \end{cases}$$

C.E: $a \neq 0$

m.c.m: a

$$\begin{cases} x + (a-1)y = 3-a \\ x + 2ay = -4a \end{cases}$$

$$D = \begin{vmatrix} 1 & a-1 \\ 1 & 2a \end{vmatrix} = 2a - a + 1 = a + 1$$

$$D_x = \begin{vmatrix} 3-a & a-1 \\ -4a & 2a \end{vmatrix} = 6a - 2a^2 - [-4a(a-1)] =$$

$$= 6a - 2a^2 - (-4a^2 + 4a) =$$

$$= 6a - 2a^2 + 4a^2 - 4a =$$

$$= 2a + 2a^2 = 2a(a+1)$$

$$D_y = \begin{vmatrix} 1 & 3-a \\ 1 & -4a \end{vmatrix} = -4a - 3 + a = -3a - 3 = $$
$$= -3(a+1)$$

Se $D = 0$ cioé $a + 1 = 0$; $a = -1$ $\begin{cases} 0x = 0 \\ 0y = 0 \end{cases}$ S. INDET.

Se $D \neq 0$ cioé $a + 1 \neq 0$; $a \neq -1$

$$\Rightarrow \begin{cases} x = \dfrac{D_x}{D} = \dfrac{2a\cancel{(a+1)}}{\cancel{a+1}} = 2a; \\ y = \dfrac{D_y}{D} = \dfrac{-3\cancel{(a+1)}}{\cancel{a+1}} = -3 \end{cases}$$

PAR.	TIPO	SOL.
$a = 0$	PERDE SIG.	NESSUNA
$a = -1$	INDET.	∞
$a \neq 0 \wedge a \neq -1$	DET.	$x = 2a$ $y = -3$

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$$\begin{cases} a\left(x-\frac{1}{a}\right)+y=-a & C.E: a\neq 0 \\ x+\frac{y}{2a}=\frac{1}{a}-2 & C.E: a\neq 0 \text{ m.c.m}: 2a \end{cases}$$

$$\begin{cases} ax-1+y=-a \\ 2ax+y=2-4a \end{cases} \qquad \begin{cases} ax+y=1-a \\ 2ax+y=2-4a \end{cases}$$

$$D=\begin{vmatrix} a & 1 \\ 2a & 1 \end{vmatrix}=a-2a=-a$$

$$D_x=\begin{vmatrix} 1-a & 1 \\ 2-4a & 1 \end{vmatrix}=1-a-2+4a=3a-1$$

$$D_y=\begin{vmatrix} a & 1-a \\ 2a & 2-4a \end{vmatrix}=2a-4a^2-2a(1-a)=$$

$$=\cancel{2a}-4a^2-\cancel{2a}+2a^2=-2a^2$$

Se $D=0$ cioè $-a=0$; $a=0$ $\begin{cases} 0x=-1 \\ 0y==0 \end{cases}$ S. IMPOSS.

Se $D\neq 0$ cioè $-a\neq 0$; $a\neq 0$

$$\Rightarrow \left(x=\frac{D_x}{D}=\frac{3a-1}{-a}=-\frac{3a-1}{a}=\frac{1-3a}{a};\right.$$

$$\left. y=\frac{D_y}{D}=\frac{-2a^{\cancel{2}}}{-\cancel{a}}=2a\right)$$

PARAMETRO	TIPO	SOLUZIONE
$a=0$	PERDE SIG.	NESSUNA
$a\neq 0$	DET.	$x=\frac{1-3a}{a}$ $y=2a$

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$$\begin{cases} x+y=a^2 \\ \frac{x}{a^2+2a+1}+\frac{y+a}{a+1}=0 \end{cases} \qquad \begin{cases} x+y=a^2 \\ \frac{x}{(a+1)^2}+\frac{y+a}{a+1}=0 \end{cases} \qquad \begin{matrix} C.E: a\neq -1 \\ m.c.m: (a+1)^2 \end{matrix}$$

$$\begin{cases} x+y=a^2 \\ x+(a+1)(y+a)=0 \end{cases} \qquad \begin{cases} x+y=a^2 \\ x+ay+a^2+y+a=0 \end{cases}$$

$$\begin{cases} x+y=a^2 \\ x+(a+1)y=-a-a^2 \end{cases} \qquad \begin{cases} x+y=a^2 \\ x+(a+1)y=-a(a+1) \end{cases}$$

$$D=\begin{vmatrix} 1 & 1 \\ 1 & a+1 \end{vmatrix}=a\cancel{+1}\cancel{-1}=a$$

$$D_x=\begin{vmatrix} a^2 & 1 \\ -a(a+1) & a+1 \end{vmatrix}=a^3+a^2+a^2+a=a^3+2a^2+a=$$

$$=a(a^2+2a+1)=a(a+1)^2$$

$$D_y = \begin{vmatrix} 1 & a^2 \\ 1 & -a(a+1) \end{vmatrix} = -a^2 - a - a^2 = -2a^2 - a = -a(2a+1)$$

Se $D = 0$ cioé $-a = 0$; $a = 0$ $\begin{cases} 0x = 0 \\ 0y = 0 \end{cases}$ S. INDET.

Se $D \neq 0$ cioé $-a \neq 0$; $a \neq 0$

$$\Rightarrow \left(x = \frac{D_x}{D} = \frac{\cancel{a}(a+1)^2}{\cancel{a}} = (a+1)^2 = a^2 + 1 + 2a \right.;$$

$$\left. y = \frac{D_y}{D} = \frac{-\cancel{a}(2a+1)}{\cancel{a}} = -2a - 1 \right)$$

PARAM.	TIPO	SOL.
$a = -1$	PERDESIG	NESSUNA
$a = 0$	INDET.	∞
$a \neq 0 \wedge a \neq -1$	DET.	$x = a^2 + 1 + 2a$ $y = -2a - 1$

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$$\begin{cases} \dfrac{x}{a^2+a-2} = \dfrac{y+1}{a^2-4a+3} \\ x-y=2 \end{cases} \qquad \begin{cases} \dfrac{x}{(a+2)(a-1)} = \dfrac{y+1}{(a-3)(a-1)} \\ x-y=2 \end{cases}$$

C.E: $a \neq -2 \wedge a \neq 1 \wedge a \neq 3$

m.c.m: $(a+2)(a-1)(a-3)$

$$\begin{cases} x(a-3) = (y+1)(a+2) \\ x-y=2 \end{cases} \qquad \begin{cases} (a-3)x = ay+2y+a+2 \\ x-y=2 \end{cases}$$

$$\begin{cases} (a-3)x - ay - 2y = a+2 \\ x-y=2 \end{cases} \qquad \begin{cases} (a-3)x - (a+2)y = a+2 \\ x-y=2 \end{cases}$$

$$D = \begin{vmatrix} a-3 & -(a+2) \\ 1 & -1 \end{vmatrix} = \cancel{-a}+3\cancel{+a}+2=5$$

$$D_x = \begin{vmatrix} a+2 & -(a+2) \\ 2 & -1 \end{vmatrix} = -a-2+2a+4 = a+2$$

$$D_y = \begin{vmatrix} a-3 & a+2 \\ 1 & 2 \end{vmatrix} = 2a-6-a-2 = a-8$$

Poiché $D \neq 0$

$$\Rightarrow \left(x = \frac{D_x}{D} = \frac{a+2}{5} \ ; \ y = \frac{D_y}{D} = \frac{a-8}{5} \right)$$

PARAMETRO	TIPO	SOLUZIONE
$a=1 \vee a=3 \vee a=-2$	PERDE SIG	NESSUNA
$a\neq 1 \wedge a\neq 3 \wedge a\neq -2$	DET.	$x=\frac{a+2}{5}$ $y=\frac{a-8}{5}$

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$$\begin{cases} \dfrac{x}{a^2-9}+\dfrac{y}{a^2-4a+3}=\dfrac{1}{a^2+2a-3} \\ x+y=-1 \end{cases}$$

C.E: $a\neq\pm 3 \wedge a\neq 1$

m.c.m: $(a+3)(a-3)(a-1)$

$$\begin{cases} \dfrac{x}{(a+3)(a-3)}+\dfrac{y}{(a-3)(a-1)}=\dfrac{1}{(a+3)(a-1)} \\ x+y=-1 \end{cases}$$

$$\begin{cases} (a-1)x+(a+3)y=a-3 \\ x+y=-1 \end{cases}$$

$$D=\begin{vmatrix} a-1 & a+3 \\ 1 & 1 \end{vmatrix}=\cancel{a}-1-\cancel{a}-3=-4$$

$$D_x=\begin{vmatrix} a-3 & a+3 \\ -1 & 1 \end{vmatrix}=a\cancel{-3}+a\cancel{+3}=2a$$

$$D_y=\begin{vmatrix} a-1 & a-3 \\ 1 & -1 \end{vmatrix}=-a+1-a+3=-2a+4=$$

$$=-2(a-2)$$

Poiché $D \neq 0$

$$\Rightarrow \left(x = \frac{D_x}{D} = \frac{2a}{-4} = -\frac{a}{2} \;;\; y = \frac{D_y}{D} = \frac{-2(a-2)}{-4} = \frac{a-2}{2} \right)$$

PARAM.	TIPO	SOL.
$a = \pm 3 \vee a = 1$	PERDE SIG.	NESSUNA
$a \neq \pm 3 \wedge a \neq 1$	DET.	$x = -\frac{a}{2}$ $y = \frac{a-2}{2}$