ESERCIZI IN PIÙ

I SISTEMI LETTERALI INTERI

Risolvi e discuti i seguenti sistemi letterali nelle incognite x e y al variare del parametro in $\mathbb{R}$.

1 $\begin{cases} a(x-1)+2x+y=7 \\ a(-2x-1)=3y+3 \end{cases}$ $[a=-6, \text{indet.}; a \neq -6, (4; -3a-1)]$

2 $\begin{cases} 2x-y=1-ay \\ 3(a-2)y=x+a-7 \end{cases}$ $\left[a=\frac{13}{7}, \text{imp.}; a \neq \frac{13}{7}, \left(\frac{a^2-11a+13}{13-7a}; \frac{2a-13}{7a-13}\right)\right]$

3 $\begin{cases} ax=2a+6ay \\ a(x+y)=3+2(x+y) \end{cases}$ $\left[a=0, \text{indet.}; a=2, \text{imp.}; a \neq 0 \wedge a \neq 2, \left(\frac{2a+14}{7a-14}; \frac{-2a+7}{7a-14}\right)\right]$

4 $\begin{cases} 2(a+1)x+12y=3a \\ 2ax+4ay=a+2 \end{cases}$ $\left[a=0, \text{imp.}; a=2, \text{indet.}; a \neq 0 \wedge a \neq 2, \left(\frac{3a+3}{2a}; \frac{-2a-1}{4a}\right)\right]$

5 $\begin{cases} 5ay=a(x+1) \\ a(x+y-1)=2-3(x+y) \end{cases}$ $\left[a=0, \text{indet.}; a=-3, \text{imp.}; a \neq 0 \wedge a \neq -3, \left(\frac{4a+7}{6a+18}; \frac{2a+5}{6a+18}\right)\right]$

6 $\begin{cases} ax+2ay=3a \\ (a^2-1)x+3(a^2-1)y=a-1 \end{cases}$

$\left[a=0, a=1, \text{indet.}; a=-1, \text{imp.}; a \neq 0 \wedge a \neq \pm 1, \left(\frac{9a+7}{a+1}; \frac{-3a-2}{a+1}\right)\right]$

7 $\begin{cases} (a^2-2a)x-2ay=a \\ (a^2-4)x+(a+2)y=a-2 \end{cases}$ $\left[a=0, \text{indet.}; a=\pm 2, \text{imp.}; a \neq 0 \wedge a \neq \pm 2, \left(\frac{3a-2}{3a^2-12}; \frac{-4}{3a+6}\right)\right]$

8 $\begin{cases} x+2y=3a \\ \frac{2x}{3a}-\frac{y}{a}=1 \end{cases}$ $\left[a=0, \text{perde sign.}; a \neq 0, \left(\frac{15}{7}a; \frac{3a}{7}\right)\right]$

9 $\begin{cases} \frac{x}{a}+\frac{y}{2}=1 \\ \frac{x}{a}-\frac{y}{3}=2 \end{cases}$ $\left[a=0, \text{perde sign.}; a \neq 0, \left(\frac{8}{5}a; -\frac{6}{5}\right)\right]$

10 $\begin{cases} 2ax+5by=2ab \\ \frac{2x}{5b}+\frac{y}{2a}=1 \end{cases}$ $\left[a=0 \vee b=0, \text{perde sign.}; a \neq 0 \wedge b \neq 0, \left(4b; -\frac{6}{5}a\right)\right]$

11 $\begin{cases} \frac{x}{a}+\frac{y}{3b}=1 \\ 2bx-3ay=ab \end{cases}$ $\left[a=0 \vee b=0, \text{perde sign.}; a \neq 0 \wedge b \neq 0, \left(\frac{10}{11}a; \frac{3}{11}b\right)\right]$

12 $\begin{cases} \dfrac{2x+y-2ab}{2a} - \dfrac{2x+y-2b^2}{2a-2b} = \dfrac{y}{b} \\ 2x+y=2a^2 \end{cases}$

$[a=0 \vee b=0 \vee a=b$, perde sign.; $a \neq 0 \wedge b \neq 0 \wedge a \neq b, (a^2+b^2; -2b^2)]$

13 $\begin{cases} \dfrac{x}{3a-1} + \dfrac{y}{2} = 2 \\ 2x-y+4=0 \end{cases}$

$\left[a=\dfrac{1}{3}\right.$, perde sign.; $a=0$, indet.; $\left.a \neq 0 \wedge a \neq \dfrac{1}{3}, (0;4)\right]$

14 $\begin{cases} \dfrac{x+y+a}{a+b} - \dfrac{x-y-a}{a-b} = 2 \\ x+y=b \end{cases}$

$[a=b \vee a=-b$, perde sign.; $a \neq \pm b, (b;0)]$

15 $\begin{cases} x+2y=a+2 \\ (a-1)x+ay=2a \end{cases}$

$[a=2$, indet.; $a \neq 2, (-a; a+1)]$