

Aufgaben Gleichungen mit zwei Unbekannten

Aufgabe 1:

Bestimmen Sie die Lösungsmengen der linearen Gleichungssysteme nach dem Gleichsetzungsverfahren.

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|---|--|--|
| a) I $x + y = 5$
II $x - y = 3$ | d) I $5x + 4y = 19$
II $3x - 2y = 7$ | g) I $2x - 3y - 4 = 0$
II $5x - 4y + 1 = 0$ |
| b) I $4x - 5y = 7$
II $7x + 5y = 26$ | e) I $4x + 5y + 9 = 0$
II $8x - 2y + 3 = 0$ | h) I $5x + 3y = 19$
II $6x - 2y = 6$ |
| c) I $2x + 7y = 8$
II $6x - 13y = -10$ | f) I $5x - 2y = 9$
II $7x + 3y = 1$ | i) I $8x - 5y = 49$
II $7x + 15y = 101$ |

Aufgabe 2:

Bestimmen Sie die Lösungsmengen nach dem Einsetzungsverfahren.

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|--|---|--|
| a) (I) $x + y = 3$
(II) $y = x - 1$ | e) (I) $3x + 5y = 10$
(II) $x = y - 2$ | i) (I) $5x - 2y = 7$
(II) $y = 3 - 2x$ |
| b) (I) $1,2x - 5y = 2,4$
(II) $y = 1,2x$ | f) (I) $3x + 4,5y = -0,9$
(II) $x = -2,4y$ | j) (I) $\frac{1}{4}x - 3y = 1\frac{1}{2}$
(II) $y = \frac{5}{6}x$ |
| c) (I) $4x = 2y - 1$
(II) $2y - x = 7$ | g) (I) $8x - 5y = 8$
(II) $2x + 3y = 2$ | k) (I) $4y - 3x = 4$
(II) $2x - y = 6$ |
| d) (I) $11x + 9y = 17$
(II) $3x + 4y = 0$ | h) (I) $3x - 4y - 7 = 0$
(II) $5x - 6y - 13 = 0$ | |

Aufgabe 3:

Berechnen Sie nach dem Additionsverfahren.

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|---|--|--|
| a) (I) $x + y = 7$
(II) $x - y = 3$ | d) (I) $y - 2x = 1$
(II) $y + 2x = 5$ | g) (I) $2x + 5y = 3$
(II) $x - 5y = 9$ |
| b) (I) $6x + 2y = 7$
(II) $6x + 7y = 11$ | e) (I) $5x + 3y = 14$
(II) $4x + 3y = 16$ | h) (I) $2x + 5y = 14$
(II) $2x - 3y = -4$ |
| c) (I) $7x + 10y = 3$
(II) $2x + 5y = 3$ | f) (I) $9x - 7y = 10$
(II) $3x + y = 2$ | i) (I) $3x + 7y = 26$
(II) $5x - 6y = 8$ |

Aufgabe 4:

Berechnen Sie nach beliebigen Verfahren.

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|----|---|----|---|----|---|
| a) | (I) $x + y = 2$
(II) $x - y = 4$ | h) | (I) $3x - 9y = 3$
(II) $6x - 2y = 54$ | o) | (I) $6x + 5y = 4$
(II) $5x - 6y = -17$ |
| b) | (I) $x + y = 9$
(II) $x - y = 5$ | i) | (I) $3x + y = 4$
(II) $8x - 2y = -1$ | p) | (I) $4x + 2y = 10$
(II) $-8x - 4y = -20$ |
| c) | (I) $2x + 2y = 4$
(II) $2x - y = 3$ | j) | (I) $-20x + 10y = -10$
(II) $15x + 15y = 75$ | q) | (I) $16x + 10y = 8$
(II) $-10x + 12y = 34$ |
| d) | (I) $2x + 2y = 4$
(II) $2x - 3y = 2$ | k) | (I) $4x - 2y = -8$
(II) $2x + 3y = -12$ | r) | (I) $-2x + y = 3$
(II) $2x + y = 1$ |
| e) | (I) $2x - 2y = 12$
(II) $2x + 2y = 12$ | l) | (I) $6x + 8y = 16$
(II) $10x - 4y = -4$ | s) | (I) $25x + 16y = 107$
(II) $24x + 20y = 112$ |
| f) | (I) $3x + y = 6$
(II) $x + 3y = 2$ | m) | (I) $6x + 4y = 22$
(II) $10x + 8y = 0$ | t) | (I) $13x + 4y = -38$
(II) $7x - 3y = -5$ |
| g) | (I) $2x - 4y = 8$
(II) $2x - 6y = 2$ | n) | (I) $2x + 3y = 12$
(II) $5x - 3y = 9$ | u) | (I) $9x + 3y - 8 = 0$
(II) $6x + 4y - 3 = 0$ |

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Lösung Aufgabe 1:

a) $L = \{(4 1)\}$	d) $L = \{(3 1)\}$	g) $L = \left\{\left(-\frac{19}{7} \mid -\frac{22}{7}\right)\right\}$
b) $L = \{(3 1)\}$	e) $L = \left\{\left(-\frac{11}{16} \mid -\frac{5}{4}\right)\right\}$	h) $L = \{(2 3)\}$
c) $L = \left\{\left(\frac{1}{2} \mid -1\right)\right\}$	f) $L = \{(1 -2)\}$	i) $L = \{(8 3)\}$

Lösung Aufgabe 2:

a) $L = \{(2 1)\}$	e) $L = \{(0 2)\}$	i) $L = \left\{\left(\frac{13}{9} \mid \frac{1}{9}\right)\right\}$
b) $L = \{(-0,5 -0,6)\}$	f) $L = \left\{\left(-\frac{4}{5} \mid \frac{1}{3}\right)\right\}$	j) $L = \left\{\left(-\frac{2}{3} \mid -\frac{5}{9}\right)\right\}$
c) $L = \{(2 4,5)\}$	g) $L = \{(1 0)\}$	k) $L = \{(5,6 5,2)\}$
d) $L = \{(4 -3)\}$	h) $L = \{(5 2)\}$	

Lösung Aufgabe 3:

a) $L = \{(5 2)\}$	d) $L = \{(1 3)\}$	g) $L = \{(4 -1)\}$
b) $L = \left\{\left(\frac{9}{10} \mid \frac{4}{5}\right)\right\}$	e) $L = \{(-2 8)\}$	h) $L = \left\{\left(\frac{11}{8} \mid \frac{9}{4}\right)\right\}$
c) $L = \{(-1 1)\}$	f) $L = \left\{\left(\frac{4}{5} \mid -\frac{2}{5}\right)\right\}$	i) $L = \{(4 2)\}$

Lösung Aufgabe 4:

a) $L = \{(3 -1)\}$	h) $L = \{(10 3)\}$	o) $L = \{(-1 2)\}$
b) $L = \{(7 2)\}$	i) $L = \{(0,5 2,5)\}$	p) $L = \{(x y) y = -2,5x + 5\}$
c) $L = \left\{\left(\frac{5}{3} \mid \frac{1}{3}\right)\right\}$	j) $L = \{(2 3)\}$	q) $L = \left\{\left(-\frac{61}{73} \mid \frac{156}{73}\right)\right\}$
d) $L = \left\{\left(\frac{8}{5} \mid \frac{2}{5}\right)\right\}$	k) $L = \{(-3 -2)\}$	r) $L = \{(-0,5 2)\}$
e) $L = \{(6 0)\}$	l) $L = \left\{\left(\frac{4}{13} \mid \frac{23}{13}\right)\right\}$	s) $L = \{(3 2)\}$
f) $L = \{(2 0)\}$	m) $L = \left\{22 \mid -\frac{55}{2}\right\}$	t) $L = \{(-2 3)\}$
g) $L = \{(10 3)\}$	n) $L = \{(3 2)\}$	u) $L = \left\{\left(\frac{23}{18} \mid -\frac{7}{6}\right)\right\}$