Lineare Gleichungssysteme - Gleichsetzungsverfahren

Bestimme die Lösungsmenge

1) I: $y = 4x - 12$
   II: $y = -2x + 0$

2) I: $y = 4x - 11$
   II: $y = -3x + 17$

3) I: $y = -3x - 13$
   II: $y = -2x - 10$

4) I: $y = 1x - 6$
   II: $y = -2x + 6$

5) I: $y = -4x + 17$
   II: $y = -2x + 7$

6) I: $y = -4x - 13$
   II: $y = 1x + 7$

Lösung

1) $4x - 12 = -2x + 0$ | $+ 12$
   $4x = -2x + 12$ | $+ 2x$
   $6x = 12$ | $: 6$
   $x = 2$
   $x = 2$ in I:
   $y = 4 \cdot 2 - 12 = -4$
   $L\{(2/-4)\}$

2) $4x - 11 = -3x + 17$ | $+ 11$
   $4x = -3x + 28$ | $+ 3x$
   $7x = 28$ | $: 7$
   $x = 4$
   $x = 4$ in I:
   $y = 4 \cdot 4 - 11 = 5$
   $L\{(4/5)\}$

3) $-3x - 13 = -2x - 10$ | $+ 13$
   $-3x = -2x + 3$ | $+ 2x$
   $-1x = 3$ | $: (-1)$
   $x = -3$
   $x = -3$ in I:
   $y = -3 \cdot (-3) - 13 = -4$
   $L\{(-3/-4)\}$

4) $1x - 6 = -2x + 6$ | $+ 6$
   $1x = -2x + 12$ | $+ 2x$
   $3x = 12$ | $: 3$
   $x = 4$
   $x = 4$ in I:
   $y = 1 \cdot 4 - 6 = -2$
   $L\{(4/-2)\}$

5) $-4x + 17 = -2x + 7$ | $- 17$
   $-4x = -2x - 10$ | $+ 2x$
   $-2x = -10$ | $: (-2)$
   $x = 5$
   $x = 5$ in I:
   $y = -4 \cdot 5 + 17 = -3$
   $L\{(5/-3)\}$

6) $-4x - 13 = 1x + 7$ | $+ 13$
   $-4x = 1x + 20$ | $- 1x$
   $-5x = 20$ | $: (-5)$
   $x = -4$
   $x = -4$ in I:
   $y = -4 \cdot (-4) - 13 = 3$
   $L\{(-4/3)\}$