51.

2) $2x - 7 - 3x = 5(3 - 2x) - 4 \quad |+7$

$-1x = 15 - 10x - 4 + 7 \quad |+10x$

$9x = 15 - 4 + 7$

$9x = 18 \quad |:9$

$x = 2$

$L = \{2\}$

b) $1{,}3\,(0{,}4x + 3) = 7{,}2 - (x - 1{,}7$

$0{,}52x + 3{,}9 = 2{,}2 - x + 1{,}7 \quad |-3{,}9$

$0{,}52x = 2{,}2 - x + 1{,}7 - 3{,}9 \quad |+x$

$1{,}52x = 0 \quad |:1{,}5$

$x = 0$

$L = \{0\}$

c) $1\frac{1}{2}x - 2\frac{2}{5} + \frac{2}{3}x = 2x - 3\frac{3}{4}$

$1\frac{3}{6}x + \frac{4}{6}x - 2\frac{2}{5} = 2x - 3\frac{3}{4}$

$2\frac{1}{6}x - 2\frac{2}{5} = 2x - 3\frac{3}{4} \quad |-2x + 2\frac{2}{5}$

$\frac{1}{6}x = 2\frac{2}{5} - 3\frac{3}{4}$

$\frac{1}{6}x = 2\frac{8}{20} - 3\frac{15}{20}$

$\frac{1}{6}x = -1\frac{7}{20}$

$\frac{1}{6}x = -\frac{27}{20} \quad |\cdot 6$

$x = -\frac{27 \cdot 6}{20}$

$x = -\frac{81}{10}$

$x = -8\frac{1}{10}$

$L = \{-8\frac{1}{10}\}$

52 a) $x^2 - 7x + 6 = 0$

$x_{1/2} = -\frac{7}{2} \pm \sqrt{(\frac{7}{2})^2 - 6}$

$x_{1/2} = -\frac{7}{2} \pm \sqrt{6{,}25}$

$x_{1/2} = -3{,}5 \pm 2{,}5$

$x_1 = -3{,}5 + 2{,}5$

$x_1 = -1$

$x_2 = -3{,}5 - 2{,}5$

$x_2 = 6$ $\quad L\{-1;6\}$

✓

b) $0{,}4x^2 - 2{,}4x = 0 \quad | : 0{,}4$

$x^2 - 6x = 0$

$x_{1/2} = -\frac{6}{2} \pm \sqrt{(\frac{7}{2})^2 - 0}$

$x_{1/2} = -3 \pm \sqrt{9}$

$x_1 = -3 + 3$

$x_1 = 0$

$x_2 = -3 - 3$

$x_2 = -6$ $\quad L\{0;-6\}$

✓

c) $0{,}7x^2 - 4{,}9x + 8{,}4 = 0 \quad | : 0{,}7$

$x^2 - 7x + 12 = 0$

$x_{1,2} = \frac{7}{2} \pm \sqrt{(\frac{7}{2})^2 - 12}$

$x_{1/2} = 3{,}5 \pm 0{,}5$

$x_1 = 3{,}5 + 0{,}5$ $\qquad x_2 = 3{,}5 - 0{,}5$

$x_1 = 4$ $\qquad x_2 = 3$ $\quad L\{3;4\}$

✓

d) $\frac{1}{3}x^2 + \frac{2}{7}x + 2 = 0$

?

53. a) I $2x - 3y = 5$ $\quad 1 \cdot 2$
II $5x + 6y = -1$

I $4x - 6y = 10$
II $5x + 6y = -1$

I+II $9x = 9 \quad 1:9$

$x = 1$

$2 \cdot 1 - 3y = 5 \quad 1-2$

$-3y = 3 \quad 1:-3$

$y = -1$

$L\{1|-1\}$

✓

b) I $-5x + 2y = 17$
II $y = 1{,}5 - x$

$-5x + 2 \cdot (1{,}5 - x) = 17$
$-5x + 3 - 2x = 17$

$-7x + 3 = 17 \quad 1-3$

$-7x = 14 \quad 1:-7$

$x = \underline{\underline{-2}}$

$y = 1{,}5 - (-2)$
$y = \underline{\underline{3{,}5}}$

$L\{3{,}5|-2\}$

✓

c) I $x = 2y + 3$
II $x = 4 - y$

$2y + 3 = 4 - y \quad | + y \; - 3$

$3y = 1 \quad | : 3$

$y = \frac{1}{3}$

$x = 4 - \frac{1}{3}$

$x = 3{,}\overline{6}$ $\quad \mathbb{L} = \{0{,}\overline{3} \,|\, 3{,}\overline{6}\}$

✓

d) I $-x + 3y = 6 \quad | \cdot 2$
II $2x - 6y = 0$

I $-2x + 6y = 12$
II $+2x - 6y = 0$

I + II $\quad 0 = 12$

Geht nicht! $\mathbb{L} = \{\}$

✓

e) I $1{,}2x + 3{,}6y = 4{,}8$
II $2{,}3x + 6{,}9y = 9{,}2$

I

?