1) a) $6x + 11y = -89$
        $5x - 8y = 46$

    b) $7x - 9y = 24$
        $3x - 8y = 31$

    c) $x + 7y = 1$
        $-3x - 5y = 4$

2) a) $3x + 4y = 7$
        $-7x + 8y = 1$

    b) $3x - 2y = 7$
        $5x + 3y = 3$

    c) $5x - 8y = 7$
        $y = 3x + 5$

3) a) $5x + 3y = 48$
        $10x - 9y = 16$

    b) $5x - 8y = -9$
        $15x - 16y = 0$

    c) $5x - 7y = 34$
        $9x + 8y = 20$

4) a) $-8x + 11y = 31$
        $7x + 6y = 51$

    b) $7x - 3y = 15$
        $5x + 6y = 27$

    c) $5x - 2y = 12$
        $9x + 4y = 14$

5) a) $3x - 7y - 9 = 0$
        $9x = 4y - 24$

    b) $7x - 3y - 9 = 0$
        $4x = 9y - 24$

6) a) $3x - 2y = 5$
        $9x = 20 - 4y$

    b) $3x + 4y = 8$
        $1{,}41x + 1{,}88y = 3{,}7$

7) a) $5{,}7x - 3{,}8y = 7{,}4$
        $-17{,}1x + 11{,}4y = -22{,}2$

    b) $2x - 5y = 6$
        $1{,}56x - 3{,}9y = 4{,}68$

8) a) $\frac{1}{x} + \frac{2}{y} = 3$
        $\frac{4}{x} + \frac{5}{y} = 6$

    b) $\frac{x-1}{y-1} = \frac{2x+1}{2y+2}$
        $\frac{7x-2}{7x+3} = \frac{7y-1}{7y+5}$

    c) $\frac{3x+1}{3x} - \frac{y}{y-1} = \frac{11}{6x}$
        $y = 7x + 1$

9) a) $\frac{1}{x} + \frac{2}{y} = 3$
        $\frac{5}{x} + \frac{4}{y} = 3$

    b) $\frac{x-1}{x+1} = \frac{y-1}{y+2}$
        $\frac{7y+3}{7x+1} = \frac{7y-2}{7x-3}$

    c) $\frac{x-2}{x} - \frac{2y}{2y+1} = \frac{5}{6x}$
        $x = 4y + 2$

10) $\frac{5x-2y}{3} - \frac{6x-2y}{2} = \frac{x-y}{5} + \frac{y-2x}{15}$
     $3x - 4y = -9$

11) $\frac{3x-2y}{4} - \frac{5x-y}{6} = \frac{2x+y}{6} - \frac{2x}{3}$
     $2x + 5y = 9$

Lösungen:

1) a) $(-2/-7)$
    b) $(-3/-5)$
    c) $\left(-\frac{33}{16} / \frac{7}{16}\right)$

2) a) $(1/1)$
    b) $\left(\frac{27}{19} / -\frac{26}{19}\right)$
    c) $\left(-\frac{47}{19} / -\frac{46}{19}\right)$

3) a) $\left(\frac{37}{5} / -\frac{16}{3}\right)$
    b) $\left(\frac{18}{5} / \frac{27}{8}\right)$
    c) $(4/-2)$

4) a) $(3/5)$
    b) $(3/2)$
    c) $(2/-1)$

5) a) $(-4/-3)$
    b) $(3/4)$

6) a) $(2/\frac{1}{2})$
    b) $\{\}$

7) a) $\{(x/y) : 5{,}7x - 3{,}8y = 7{,}4\}$
    b) $\{(x/y) : 2x - 5y = 6\}$

8) a) $\left(-1/\frac{1}{2}\right)$
    b) $\{\}$
    c) $\{\}$

9) a) $\left(-1/\frac{1}{2}\right)$
    b) $(1/1)$
    c) $\{\}$

10) $(1/3)$
11) $(2/1)$

1) a) $3x - 2y + z = 1$
$7x + 8y - 6z = 15$
$6x - y + 3z = 5$

b) $x + 2y - z = 1$
$2x + y - 2z = -1$
$3x - y + 4z = 10$

c) $3x - 4y + z = -8$
$-3x + 5y - 2z = 9$
$6x + 3y - 3z = 1$

2) a) $x - 3y + z = 0$
$7x + 5y - 19z = 0$
$x - z = 1$

b) $2x + 2y - z = 1$
$x + 2y + 2z = 2$
$3x - 3y + 4z = 13$

c) $3x + 3y + 4z = -4$
$2x - 2y - 2z = 15$
$x + y + 6z = 1$

3) a) $-x + y + 3z = 0$
$7x - 3y + 6z = -2$
$6x - 5y - 12z = -1$

b) $2x - 4y + z = -3$
$x + 8y - 9z = 32$
$2x - 2y - 2z = 7$

c) $2x - 3y + 5z = 0$
$x + 3y + 5z = 3$
$7x + 8y + 19z = 18$

4) a) $x + y + z = 0$
$x - y - 2z = 1$
$5x - 8y + 2z = 3$

b) $2x + 3y - z = 0$
$x - y = 1$
$4x + y - z = 3$

c) $2x - z = 1$
$x + y = -4$
$3y + 4z = 5$

5) a) $x + y + z = 3$
$2x - 3y + z = 4$
$3x - 2y + 2z = 6$

b) $3x + 3y - z = 5$
$2y + 3z = 5$
$x - 2z = 5$

c) $x - 5y = 7$
$3y + 6z = 8$
$2x - 5z = 9$

6) a) $3x - 4y - 7z + 6u = 3$
$2x + y - 3z - u = 0$
$x - 2y - 2z - 5u = 2$
$3x + y - z - u = 4$

b) $4x + 3z = 1$
$y + 5u = 4$
$x + 4u = 5$
$3y - 5z = 2$

7) a) $x + y - z + 3u = 0$
$x - 2y - u = 0$
$y + z - u = -1$
$x + 3z = 2$

b) $x + y - u = 2$
$y + z = 1$
$x - z = 0$
$z - u = 1$

8) a) $3x - y + z - u = 3$
$y + z + u = 0$
$x + y - z = 1$
$2x + z + u = 2$

b) $x - y + u = 4$
$y + z + u = 1$
$2x - y = 6$
$y - 2z + u = 1$

Lösungen:

1) a) $(1/1/0)$
b) $(1/1/2)$
c) $\left(-\frac{1}{3} / 2 / 1\right)$

2) a) $(2/1/1)$
b) $(2/-1/1)$
c) $\left(3/-5/\frac{1}{2}\right)$

3) a) $\left(-3/-5/\frac{2}{3}\right)$
b) $\left(1/\frac{1}{2}/-3\right)$
c) $\left(\frac{249}{79}/ \frac{81}{79}/ -\frac{51}{79}\right)$

4) a) $\left(\frac{13}{33}/ -\frac{2}{11}/ -\frac{7}{33}\right)$
b) $\{\,\}$

5) a) $\{\,\}$
b) $(-65/55/-35)$
c) $\left(\frac{23}{3}/ \frac{2}{15}/ \frac{19}{15}\right)$

6) a) $(2/-1/1/0)$
b) $(1/-1/-1/1)$

c) $\left(\frac{21}{5}/ -\frac{41}{5}/ \frac{37}{5}\right)$

7) a) $(-1/-1/1/1)$
b) $(0/1/0/-1)$

8) a) $(1/0/0/0)$
b) $(3/0/0/1)$