

Systeme von linearen Gleichungen mit mehr als 2 Unbekannten

135 a) $2x - 3y + 4z = 6$
 $3x + 8y - 5z = 10$
 $6z = 54$

b) $16y = 8$
 $8x - 4y - 3z = 7$
 $5x - 7y + 2z = 6$

136 a) $5x = 4.5$
 $x + 2y - 3z = 0$
 $4x - 5y + 6z = 0$

b) $x + y + z = 8$
 $3x + 5y + 7z = 6$
 $2z = 4$

137 a) $11x - 9y = 30$
 $8x - 7y = 20$
 $x - y + z = 10$

b) $x + y + z = 8$
 $\frac{1}{5}y + 0.5z = 8$
 $\frac{1}{3}y + 0.3z = 8$

138 a) $4x - 3z = 11$
 $x - 6y + 8z = 4$
 $7x - 5z = 21$

b) $5x - 8y = 1$
 $2x - 3y = 1$
 $4x + 7y - 10z = 1$

139 a) $9x + 7y = 13$
 $2x - 3y + 4z = 48$
 $5x - 8y + 6z = 85$

b) $x + y + z = 33$
 $3x - 8y + 7z = 26$
 $5y - 3z = 19$

140 a) $9x - 6y + 7z = 4$
 $4x + 3y - 5z = 9$
 $2x + 3z = 16$

b) $4x + 7y = 5$
 $x + 8y - 4z = 0$
 $8x - y + 7z = 0$

141 a) $3x + 4y + 2z = 9$
 $4x + 3y = 8$
 $2y + 3z = 7$

b) $7x + 8y + 9z = 6$
 $5x + 4y = -3$
 $4x - 3z = 11$

142 a) $4x + y = 25$
 $x + 2z = 30$
 $3y + z = 40$

b) $4x + 7y = 10$
 $3x + 8z = 13$
 $3y + 5z = 16$

143 a) $x + y + z = 60$
 $x - 3y + 2z = -4$
 $2x + 5y - 5z = 68$

b) $7x - 6y + 5z = 18$
 $5x + 3y - 4z = 28$
 $8x + 2y + 3z = 26$

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

d) $3x + 4y - 16z = 0$
 $5x - 8y + 10z = 0$
 $2x + 6y + 7z = 52$

144 a) $x - 2y + 3z = 6$
 $8x - 3y + 4z = 6$
 $9x + 5y - 7z = 6$

b) $2x - 4y + 5z = 60$
 $3x + 9y + 2z = 65$
 $6x - 7y + 3z = 70$

145 a)
$$\begin{aligned} \frac{x}{2} + \frac{y}{3} + \frac{z}{5} &= 6 \\ \frac{x}{4} + \frac{y}{2} - \frac{z}{10} &= 3 \\ x - \frac{y}{6} + \frac{z}{2} &= 8 \end{aligned}$$

b)
$$\begin{aligned} \frac{1}{4}x + \frac{3}{4}y - z &= \frac{1}{8} \\ x - \frac{3}{2}y + \frac{4}{3}z &= \frac{1}{3} \\ \frac{1}{3}x + \frac{1}{2}y - \frac{2}{3}z &= \frac{1}{6} \end{aligned}$$

146 a)
$$\begin{aligned} \frac{6}{x} - \frac{5}{y} - \frac{6}{z} &= 0 \\ \frac{4}{x} - \frac{2}{y} + \frac{3}{z} &= 1 \\ \frac{2}{x} + \frac{3}{y} + \frac{9}{z} &= 2 \end{aligned}$$

b)
$$\begin{aligned} 6x - 5y^{-1} - 6z^{-2} &= 0 \\ 4x - 2y^{-1} + 3z^{-2} &= 1 \\ 2x + 3y^{-1} + 9z^{-2} &= 2 \end{aligned}$$

c)
$$\begin{aligned} 6xyz - 5yz - 6z &= 0 \\ 4xyz - 2yz + 3z &= 1 \\ 2xyz + 3yz + 9z &= 2 \end{aligned}$$

d)
$$\begin{aligned} 6(x+y)^{-1} - 5(x+z)^{-1} - 6(y+z)^{-1} &= 0 \\ 4(x+y)^{-1} - 2(x+z)^{-1} + 3(y+z)^{-1} &= 1 \\ 2(x+y)^{-1} + 3(x+z)^{-1} + 9(y+z)^{-1} &= 2 \end{aligned}$$

147 a)
$$\begin{aligned} w + x - y + z &= 16 \\ 3w - 2x + 9y - z &= 11 \\ 4w - 3x + 6y + 2z &= 13 \\ 6w - 4x + 2y + 3z &= 10 \end{aligned}$$

b)
$$\begin{aligned} -w + 3x - 2y + z &= 17 \\ w + 2x - 3y - 4z &= 10 \\ 3w - x + 4y + 2z &= 21 \\ 2w - 5x + y + 3z &= 15 \end{aligned}$$

148 a)
$$\begin{aligned} v - w + x - y + z &= 0 \\ 2v - w + 3x + y - 3z &= 0 \\ v + 4w + 5x - 3y - 3z &= 0 \\ 4v - 2w - x - 2y + 3z &= 0 \\ 3v + w - 2x - 3y + 3z &= 1 \end{aligned}$$

b)
$$\begin{aligned} v + w + x + 3y + 2z &= 0 \\ 2v - 4w - 5x - 4y - 2z &= 1 \\ 3v - w + 2x + y - z &= 2 \\ 4v - 5w - 4x + y + z &= 3 \\ 5v - 6w - 4x + 4y + 3z &= 4 \end{aligned}$$

149 a)
$$\begin{aligned} v + w &= 1 \\ w + x &= 2 \\ x + y &= 3 \\ y + z &= 4 \\ z + v &= 5 \end{aligned}$$

b)
$$\begin{aligned} v + 2w &= 11 \\ w + 2x &= 22 \\ x + 2y &= 33 \\ y + 2z &= 44 \\ z + 2v &= 55 \end{aligned}$$



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- 135 a) $(-3, 8, 9)$ b) $\left(\frac{3}{2}, \frac{1}{2}, 1\right)$
- 136 a) $(0.9, 5.4, 3.9)$ b) $(19, -13, 2)$
- 137 a) $(6, 4, 8)$ b) $(-17, 15, 10)$
- 138 a) $(8, 10, 7)$ b) $(5, 3, 4)$
- 139 a) $(3, -2, 9)$ b) $(10, 11, 12)$
- 140 a) $(2, 7, 4)$ b) $(-4, 3, 5)$
- 141 a) $(5, -4, 5)$ b) $(5, -7, 3)$
- 142 a) $(4, 9, 13)$ b) $(-1, 2, 2)$
- 143 a) $(24, 20, 16)$ b) $(4, 0, -2)$ c) $(3, 3, 5)$ d) $(4, 5, 2)$
- 144 a) $(1, 26, 19)$ b) $(9, 2, 10)$
- 145 a) $(4, 6, 10)$ b) $\left(\frac{1}{2}, \frac{1}{3}, \frac{1}{4}\right)$
- 146 a) $(4, 6, 9)$ b) $\left(\frac{1}{4}, 6, \pm 3\right)$ c) $\left(\frac{3}{2}, \frac{3}{2}, \frac{1}{9}\right)$ d) $\left(\frac{1}{2}, \frac{7}{2}, \frac{11}{2}\right)$
- 147 a) $(5, 9, 2, 4)$ b) $(11, 4, -5, 6)$
- 148 a) $(2, 4, 3, 6, 5)$ b) $(1, -2, 3, -4, 5)$
- 149 a) $\left(\frac{3}{2}, -\frac{1}{2}, \frac{5}{2}, \frac{1}{2}, \frac{7}{2}\right)$ b) $(19, -4, 13, 10, 17)$