

Bestimmen Sie die Lösungsmengen der Gleichungssysteme!

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|---|--|---|
| 1. $3x - 2y = -4$<br>$5x + y = 15$  | 2. $5x - 2y = 5$<br>$x + 2y = 1$   | 3. $4x - 2y = 8$<br>$5x - 6y = 24$                                    |
| 4. $6x - 4y = 8$<br>$9x - 6y = 12$  | 5. $-3x + 5y = -16$<br>$3x - 7y = 32$  | 6. $2x + 5 = 3y + 10$<br>$3x - 4 = 2y - 4$                            |
| 7. $3x + 2y = 7a + 8b$<br>$9x - 6y = -3a + 12b$   | 8. $2ax + 5ay = 5a^2 + ab$<br>$4bx + 3by = 3ab + 9b^2$   |   |
| 9. $2ax + 3bx - 4ay + 2by = 4a^2 - 6ab + 6b^2$<br>$5ax - 2bx + 3ay - 3by = 10a^2 + 5ab - 9b^2$                  | 10. $2ax + 3bx + 4ay - 13by = 2a^2 + 7ab + 6b^2$<br>$5ax - 10bx + 2ay - 5by = 5a^2 - 20b^2$  |   |
| 11. $3x - 2y - z = -5$<br>$4x + 2y - 3z = -4$<br>$x - 2y + 5z = 17$   | 12. $2x + y - 3z = 4$<br>$x + y - 2z = 5$<br>$3x + 3y + 5z = -18$  | 13. $4x + 5y - 4z = -61$<br>$4x - 3y + z = 17$<br>$2z + 3x + 3y = 25$ |
| 14. $4x + 3y + z = 0$<br>$3x + 4y + 5z = 0$<br>$x - 2y + z = 0$   | 15. $2ax + ay + z = a$<br>$ax + 0,5by + bz = b^2$<br>$ax + 2ay - 2bz = ab$   | 16. $5x - 3y + 4z = 1$<br>$2x + 4y - 2z = -14$<br>$3x - 5y + 3z = 3$  |
| 17. $abx - 2aby + 2bz = 3ab$<br>$-2ax + 4by + 10z = a - 4b$<br>$3bx - 6ay = 0$                                  | 18. $2ax - by = 4a^2 + b^2$<br>$2b(x+y) - a(x-y) = 6ab$  |   |
| 19. $2x_1 + 3x_2 + 3x_4 = 3$<br>$3x_1 - 2x_3 - 4x_4 = 3$<br>$4x_2 - x_3 + 4x_4 = -3$<br>$3x_1 + 2x_2 + x_3 = 2$ | 20. $5x_1 + 3x_2 - 4x_3 + x_4 = 3$<br>$x_1 - 2x_2 - 2x_3 + 3x_4 = 3$<br>$2x_1 - 2x_2 + 2x_3 = 8$<br>$6x_1 - 5x_2 - 8x_3 + 2x_4 = 20$ |   |

Lösungen:

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|-----------------------|------------------------------------|-----------------------|-----------------------|
| 1. $x=2; y=5$         | 2. $x=1; y=0$                      | 3. $x=0; y=-4$        | 4. unterbestimmt      |
| 5. $x=-8; y=-8$       | 6. $x=-2; y=-3$                    | 7. $x=a+2b; y=2a+b$   | 8. $x=3b; y=a-b$      |
| 9. $x=2a; y=3b$       | 10. $x=a+2b; y=0$                  | 11. $x=1; y=2; z=4$   | 12. $x=-4; y=3; z=-3$ |
| 13. $x=0; y=-1; z=14$ | 14. $x=0; y=0; z=0$                | 15. $x=-b; y=2b; z=a$ |                       |
| 16. $x=-3; y=0; z=4$  | 17. $x = \frac{2a}{a-b}$           | $y = \frac{b}{a-b}$   | $z = \frac{a}{2}$     |
| 18. $x=2a+b; y=2a-b$  | 20. $x_1=2; x_2=-2; x_3=0; x_4=-1$ |                       |                       |