

Bestimmen Sie die Definitions- und Lösungsmengen der Ungleichungen:

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| 1. $3x+5 \geq 11$ | 2. $10x+2 < 12x+8$ | 3. $\frac{2x+1}{2x-1} \leq 3$ |
| 4. $\frac{2x+2}{x+1} \leq 12$ | 5. $\frac{2x+1}{3x-6} \geq \frac{5}{3x-6}$ | 6. $\frac{3x-1}{2x-8} \leq \frac{11}{2x-8}$ |
| 7. $\frac{3x+2}{x+1} \geq \frac{x-2}{x+1}$ | 8. $\frac{1}{x-1} \geq \frac{1}{x-2}$ | 9. $\frac{2x-1}{x+1} < \frac{2x-3}{x-1}$ |
| 10. $\frac{1}{x^2+1} > \frac{1}{x^2+2}$ | 11. $ x+2 \leq 3$ | 12. $ x-1 -2 \leq 2$ |
| 13. $2 - 3x-6 < x$ | 14. $ 2x+6 + 2x \leq 2$ | 15. $ 3x-6 > 3x-12$ |
| 16. $ 2x-8 + 16 < 2x$ | 17. $\left \frac{2x+2}{x+1} \right \leq 12$ | 18. $\left \frac{2x+1}{2x-1} \right \leq 3$ |
| 19. $ x-1 < x-3 $ | 20. $ x-3 \cdot x+2 \leq 0$ | 21. $x^2 + 6x + 10 > 0$ |
| 22. $x^2 + 6x + 8 < 0$ | 23. $2x^2 - 18x + 35 \geq 2x + 3$ | 24. $3x^2 + 9x < 0$ |
| 25. $\frac{3x-1}{x+1} \leq \frac{2x-3}{x-2}$ | 26. $\frac{2x+1}{x-1} > \frac{3x+2}{x-2}$ | 27. $ x^2 - 8x + 15 < 1$ |
| 28. $\frac{3x-8}{x-2} \leq \frac{2x-7}{x+4}$ | | |

Lösungen

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| 1. $D = \mathbb{R}$ $L = \{x \mid x \geq 2\}$ | 2. $D = \mathbb{R}$ $L = \{x \mid x > -3\}$ |
| 3. $D = \mathbb{R} \setminus \{\frac{1}{2}\}$ $L = \{x \mid x < \frac{1}{2} \vee x \geq 1\}$ | 4. $D = \mathbb{R} \setminus \{-1\}$ $L = \mathbb{R} \setminus \{-1\}$ |
| 5. $D = \mathbb{R} \setminus \{2\}$ $L = \mathbb{R} \setminus \{2\}$ | 6. $D = \mathbb{R} \setminus \{4\}$ $L = \emptyset$ |
| 7. $D = \mathbb{R} \setminus \{-1\}$ $L = \{x \mid x \leq -2 \vee x > -1\}$ | 8. $D = \mathbb{R} \setminus \{1; 2\}$ $L = \{x \mid 1 < x < 2\}$ |
| 9. $D = \mathbb{R} \setminus \{-1; 1\}$ $L = \{x \mid -1 < x < 1 \vee x > 2\}$ | 10. $D = \mathbb{R}$ $L = \mathbb{R}$ |
| 11. $D = \mathbb{R}$ $L = \{x \mid -5 \leq x \leq 1\}$ | 12. $D = \mathbb{R}$ $L = \{x \mid -3 \leq x \leq 5\}$ |
| 13. $D = \mathbb{R}$ $L = \mathbb{R} \setminus \{2\}$ | 14. $D = \mathbb{R}$ $L = \{x \mid x \leq -1\}$ |
| 15. $D = \mathbb{R}$ $L = \mathbb{R}$ | 16. $D = \mathbb{R}$ $L = \emptyset$ |
| 17. $D = \mathbb{R} \setminus \{-1\}$ $L = \mathbb{R} \setminus \{-1\}$ | 18. $D = \mathbb{R} \setminus \{0, 5\}$ $L = \{x \mid x \leq 0, 25 \vee x \geq 1\}$ |
| 19. $D = \mathbb{R}$ $L = \{x \mid x < 2\}$ | 20. $D = \mathbb{R}$ $L = \{-2; +3\}$ |
| 21. $D = \mathbb{R}$ $L = \mathbb{R}$ | 22. $D = \mathbb{R}$ $L = \{x \mid -4 < x < -2\}$ |
| 23. $D = \mathbb{R}$ $L = \{x \mid x \leq 2 \vee x \geq 8\}$ | 24. $D = \mathbb{R}$ $L = \{x \mid -3 < x < 0\}$ |
| 25. $D = \mathbb{R} \setminus \{-1; 2\}$ $L = \{x \mid -1 < x \leq 1 \vee 2 < x \leq 5\}$ | 26. $D = \mathbb{R} \setminus \{1; 2\}$ $L = \{x \mid -2 < x < 0 \vee 1 < x < 2\}$ |
| 27. $D = \mathbb{R}$ $L = \{x \mid 4 - \sqrt{2} < x < 4 \vee 4 < x < 4 + \sqrt{2}\}$ | 28. $D = \mathbb{R} \setminus \{-4; 2\}$ $L = \{x \mid 2 < x \leq 3 \vee 4 < x \leq 6\}$ |