

Zerlegen Sie in Faktoren, und kürzen Sie die Bruchzahlen (Nr. 126...130):

$$126. \frac{(3a^3 + 3b^3) \cdot (a + b)}{(2a^2 - 2ab + 2b^2) \cdot (a^2 - b^2)} : \frac{a + b}{a - b}$$

$$129. \frac{4a^2 - 18ab^2 + 8(b^2)^2}{2a - 8b^2}$$

$$127. \frac{a^3x^2 - ab^4x^2}{a^2x^2 - abx^2}$$

$$130. \frac{2x^2 - 4x + 2}{3x^2 + 3x - 6} : \frac{9x^2 + 18x + 9}{2x^2 - 2x - 4}$$

$$128. \frac{a^4b + a(b^2)^3}{a^2b + ab^2}$$

Fassen Sie die Bruchzahlen zusammen:

$$131. \left(\frac{3}{x^2 - 4x + 3} + \frac{2}{x^2 - 3x + 2} - \frac{5}{x^2 - 5x + 6} \right) : \frac{-7x}{x^2 - 4x + 3}$$

$$132. \frac{1}{bx-2} + \frac{1}{b^x} - \frac{b}{bx+2}$$

$$133. \frac{4a^{n+1}b^n + 6a^2b^n + 4a^3b^n + b^n}{4a^{n+2}b^n} - \frac{2a^{n-4} + 3}{3a^{n-3}} - \frac{2a^{n-5} + 9}{6a^{n-4}}$$

$$134. \frac{2a^{n-1}}{(a+b)^{n-1}} + \frac{a^{n+1}}{a(a+b)^n} - \frac{a \cdot a^{n-3}}{(a+b)^{n-2}}$$

$$135. \frac{a^{-4x} - b^{-4x}}{a^{-x} - b^{-x}} - \frac{1}{a^{2x}b^x} - \frac{1}{a^x b^{2x}}$$

II. Gleichungen

Gleichungen mit einer Variablen

$$1. 3x + 30 - (28 - x) = 3x - 2x + 4$$

$$15. 3x - 1 - \frac{7x + 1}{3} = \frac{8x + 7}{6} - \frac{5x + 30}{12}$$

$$2. 3(x + 29) + 16 - 5(3 - x) = 2(4 - x)$$

$$16. \frac{4}{x} - \frac{1}{2} = \frac{7}{2x} - \frac{1}{4}$$

$$3. 5,8x + 16(3,6x + 4) = 135,76 + 32,2x$$

$$17. \frac{10}{x} - \frac{2x - 14}{x} + 2 = \frac{2(10 + 2x)}{x}$$

$$4. 8(x + 2) = 16x - 2[3x + (4 - x)]$$

$$5. 8 - [7x - 5(x - 6)] = -122$$

$$18. \frac{3x - 6}{x - 3} + \frac{4x - 30}{3x - 9} = \frac{2x + 12}{x - 3}$$

$$6. x(4x - 9) = 3(2x - 5) \cdot (x - 1)$$

$$19. \frac{3}{2x + 2} - \frac{3}{x^2 - 1} = \frac{1}{2x - 2}$$

$$7. \frac{1}{2}(x + b)^2 + \frac{1}{2}(x - b)^2 = x(x + b)$$

$$8. [4(x + 3)]^2 = [5(x + 2)]^2 - (3x - 2)^2$$

$$20. \frac{1}{x - 1,5} - \frac{3}{6x - 9} = \frac{x}{4x^2 - 12x + 9}$$

$$9. 10x - 4[3x - (5x - 30)] = 24$$

$$10. 1 + (16 - x) \cdot (10 - x) = (x - 15) \cdot (x - 12)$$

$$11. \frac{6x - 18}{28} - \frac{3x - 75}{10} = 10,5 - \frac{3 + 1,5x}{4}$$

$$21. \left(\frac{x}{2} - \frac{2}{3} \right) \cdot \left(\frac{x}{3} + \frac{1}{2} \right) = \frac{x - 1}{3} \cdot \frac{x + 1}{2}$$

$$12. \frac{2(8x - 1)}{5} + \frac{12x - 9}{4} = 2x + \frac{1}{2}$$

$$22. a(a - x) + \frac{x}{2}(a - b) = a^2 + b^2$$

$$13. \frac{3x}{4} + 0,05 = \frac{x}{2} + \frac{10x - 0,6}{14}$$

$$23. b(2a - 2x) + 2(2bx - 2a) = 2b(a - x)$$

$$14. \frac{5(x - 7)}{2} - 8 = \frac{8x - 22}{3} - 20$$

$$24. \frac{2x + 4b}{a} + 4(a - b) = \frac{4a - 2x}{b} + 2x$$

$$25. \frac{4x}{2(a + b)} + \frac{b^2 + x}{a + b} - \frac{a^2}{a - b} = \frac{2ab(a + 2b)}{a^2 - b^2}$$

$$26. \frac{2ax}{b} + \frac{bx}{b} + a + 5b = \frac{12a^2}{2b} + \frac{b}{a}(x + 2b)$$

$$27. \frac{6}{x} + \frac{6x}{a + 2b} = \frac{6x + 10}{a + 2b} + \frac{4}{x}$$

Lösungen Aufgaben 126 - 135 / 1 - 27

126. 1,5

127. $(a^2 + b^2)(a + b) = a^3 + a^2b + ab^2 + b^3$

128. $a^4 - a^3b + a^2b^2 - ab^3 + b^4$

129. $2a - b^2$

130. $\frac{4(x-1)(x-2)}{27(x+1)(x+2)} = \frac{4(x^2 - 3x + 2)}{27(x^2 + 3x + 2)}$

131. $\frac{1}{x(x-2)}$

132. $\frac{b^3 + b - 1}{bx + 1}$

133. $\frac{1}{4a^n + 2}$

134. $\frac{2a^n - a^{n-2}b^2}{(a+b)^n}$

135. $\frac{1}{a^3x} + \frac{1}{b^3x}$

II. Gleichungen

1. $x = \frac{2}{3}$

2. $x = -8$

3. $x = 2,3$

4. $x = 6$

5. $x = 50$

6. $x = 3 \pm \sqrt{\frac{3}{2}}$

7. $x = b$

8. $x = 3$

9. $x = 8$

10. $x = 19$

11. $x = 10$

12. $x = \frac{3}{4}$

13. $x = 0,2$

14. $x = 11$

15. $x = 0$

16. $x = 2$

17. $x = 1$

18. $x = 12$

19. $x = 5$

20. $x = 3$

21. $x = 6$

22. $x = -\frac{2b^2}{a+b}$

23. $x = \frac{a}{b}$

24. $x = 2(a-b)$

25. $x = \frac{(a+b)^2}{3(a-b)}$

26. $x = 3a - 2b$

27. $x = \frac{a+2b}{5}$