3. Bez Bruchterme kürzen Lösungen AB 2

1. $\frac{x^2+10x+9}{x^2-4x-5} = \frac{(x+1)(x+9)}{(x+1)(x-5)} = \underline{\underline{\frac{(x+9)}{(x-5)}}}$

2. $\frac{3y^2-6y-9}{6y^2+18y+12} = \frac{3(y^2-2y-3)}{6(y^2+3y+2)} = \frac{3(y-3)(y+1)}{6(y+2)(y+1)} = \underline{\underline{\frac{(y-3)}{2(y+2)}}}$

3. $\frac{x^2-y^2}{x^2-2xy+y^2} = \frac{(x+y)(x-y)}{(x-y)(x-y)} = \underline{\underline{\frac{(x+y)}{(x-y)}}}$

4. $\frac{4mx-20}{5-mx} = \frac{4(mx-5)}{-1(mx-5)} = \underline{\underline{-4}}$

5. $\frac{x^2-5x+6}{x^2+3x-10} = \frac{(x-2)(x-3)}{(x-2)(x+5)} = \underline{\underline{\frac{(x-3)}{(x+5)}}}$

6. $\frac{3a^2x+12a^2}{x^2+6x+8} = \frac{3a^2(x+4)}{(x+2)(x+4)} = \underline{\underline{\frac{3a^2}{(x+2)}}}$

7. $\frac{4ab+4a^2b}{b^2+b} = \frac{4ab(1+a)}{b(b+1)} = \underline{\underline{\frac{4a(1+a)}{(b+1)}}}$

8. $\frac{40xy-24x^2}{45y^2-27xy} = \frac{8x(5y-3x)}{9y(5y-3x)} = \underline{\underline{\frac{8x}{9y}}}$

9. $\frac{rs^2-r^2s}{7rs} = \frac{rs(s-r)}{7rs} = \underline{\underline{\frac{(s-r)}{7}}}$

10. $\frac{36x^2-120xy+100y^2}{12x^2-20xy} = \frac{4(9x^2-30xy+25y^2)}{4x(3x-5y)} = \frac{4(3x-5y)(3x-5y)}{4x(3x-5y)} = \underline{\underline{\frac{(3x-5y)}{x}}}$

11. $\frac{4y^2-4yz-8z^2}{6y^2-18yz+12z^2} = \frac{4(y^2-yz-2z^2)}{6(y^2-3yz+2z^2)} = \frac{4(y+z)(y-2z)}{6(y-z)(y-2z)} = \underline{\underline{\frac{2(y+z)}{3(y-z)}}}$

12. $\frac{r^2-rs}{r^2-s^2} = \frac{r(r-s)}{(r+s)(r-s)} = \underline{\underline{\frac{r}{(r+s)}}}$

13. $\frac{y^2-16}{y^2+8y+16} = \frac{(y+4)(y-4)}{(y+4)(y+4)} = \underline{\underline{\frac{(y-4)}{(y+4)}}}$

14. $\frac{49x^2-25y^2}{15y-21x} = \frac{(7x+5y)(7x-5y)}{3(5y-7x)} = \frac{(7x+5y)(7x-5y)}{-3(7x-5y)} = \underline{\underline{-\frac{7x+5y}{3}}}$

15. $\frac{x^2-6x-7}{49-x^2} = \frac{(x+1)(x-7)}{(7+x)(7-x)} = \frac{(x+1)(x-7)}{-(7+x)(x-7)} = \underline{\underline{-\frac{(x+1)}{(7+x)}}}$

16. $\frac{4m^2-6m}{4m^2-12m+9} = \frac{2m(2m-3)}{(2m-3)(2m-3)} = \underline{\underline{\frac{2m}{(2m-3)}}}$

17. $\frac{18y^2-32z^2}{56z-42y} = \frac{2(9y^2-16z^2)}{14(4z-3y)} = \frac{2(3y+4z)(3y-4z)}{-14(3y-4z)} = \underline{\underline{-\frac{(3y+4z)}{7}}}$

18. $\frac{s-rs}{r^2-1} = \frac{s(1-r)}{(r+1)(r-1)} = \frac{-s(r-1)}{(r+1)(r-1)} = \underline{\underline{\frac{-s}{(r+1)}}}$

19. $\frac{a^2bx-ab^2y}{abc+abd} = \frac{ab(ax-by)}{ab(c+d)} = \underline{\underline{\frac{(ax-by)}{(c+d)}}}$

20. $\frac{x^2-7x+12}{x^2-16} = \frac{(x-3)(x-4)}{(x+4)(x-4)} = \underline{\underline{\frac{(x-3)}{(x+4)}}}$

21. $\frac{x^2+10x+25}{x^2+7x+10} = \frac{(x+5)(x+5)}{(x+5)(x+2)} = \underline{\underline{\frac{(x+5)}{(x+2)}}}$

22. $\frac{y^2+9y+8}{2y+16} = \frac{(y+8)(y+1)}{2(y+8)} = \underline{\underline{\frac{(y+1)}{2}}}$

23. $\frac{z^2+4z+3}{2z^2+12z+18} = \frac{(z+3)(z+1)}{2(z^2+6z+9)} = \frac{(z+3)(z+1)}{2(z+3)(z+3)} = \underline{\underline{\frac{(z+1)}{2(z+3)}}}$

24. $\frac{3z^2-27}{z^2-4z+3} = \frac{3(z^2-9)}{(z-3)(z-1)} = \frac{3(z+3)(z-3)}{(z-3)(z-1)} = \underline{\underline{\frac{3(z+3)}{(z-1)}}}$

25. $\frac{2t^2-18}{3t^2+15t+18} = \frac{2(t^2-9)}{3(t^2+5t+6)} = \frac{2(t+3)(t-3)}{3(t+3)(t+2)} = \underline{\underline{\frac{2(t-3)}{3(t+2)}}}$

26. $\frac{2u^2+14u+20}{5u^2+30u+25} = \frac{2(u^2+7u+10)}{5(u^2+6u+5)} = \frac{2(u+5)(u+2)}{5(u+5)(u+1)} = \underline{\underline{\frac{2(u+2)}{5(u+1)}}}$

27. $\frac{3x-3}{4-4x} = \frac{3(x-1)}{4(1-x)} = \frac{-3(1-x)}{4(1-x)} = \underline{\underline{-\frac{3}{4}}}$

28. $\frac{3a+3b}{5b^2-5a^2} = \frac{3(a+b)}{5(b^2-a^2)} = \frac{3(a+b)}{5(b+a)(b-a)} = \underline{\underline{\frac{3}{5(b-a)}}}$

29. $\frac{9+9a}{9-9a^2} = \frac{9(1+a)}{9(1-a^2)} = \frac{9(1+a)}{9(1+a)(1-a)} = \underline{\underline{\frac{1}{(1-a)}}}$

30. $\frac{5ax-25}{5-ax} = \frac{5(ax-5)}{-(ax-5)} = \underline{\underline{-5}}$

31. $\frac{x^2-x-2}{2z-zx} = \frac{(x-2)(x+1)}{z(2-x)} = \frac{(x-2)(x+1)}{-z(x-2)} = \underline{\underline{-\frac{(x+1)}{z}}}$

32. $\frac{3bc-3ac}{4a-4b} = \frac{3c(b-a)}{4(a-b)} = \frac{-3c(a-b)}{4(a-b)} = \underline{\underline{-\frac{3c}{4}}}$

33. $\frac{18y^2-32z^2}{56z-42y} = \frac{2(9y^2-16z^2)}{14(4z-3y)} = \frac{2(3y+4z)(3y-4z)}{-14(3y-4z)} = \underline{\underline{-\frac{(3y+4z)}{7}}}$

34. $\frac{100-144x^2}{60x-50} = \frac{4(25-36x^2)}{10(6x-5)} = \frac{4(5+6x)(5-6x)}{-10(5-6x)} = \underline{\underline{-\frac{2(5+6x)}{5}}}$

35. $\frac{24y^2-54z^2}{45z-30y} = \frac{6(4y^2-9z^2)}{15(3z-2y)} = \frac{6(2y+3z)(2y-3z)}{-15(2y-3z)} = \underline{\underline{-\frac{2(2y+3z)}{5}}}$

36. $\frac{x+5}{x^2+2x-15} = \frac{(x+5)}{(x+5)(x-3)} = \underline{\underline{\frac{1}{(x-3)}}}$

37. $\frac{xy-4x}{y^2-7y+12} = \frac{x(y-4)}{(y-4)(y-3)} = \underline{\underline{\frac{x}{(y-3)}}}$

38. $\frac{x^2+10x+9}{x^2-4x-5} = \frac{(x+9)(x+1)}{(x+1)(x-5)} = \underline{\underline{\frac{(x+9)}{(x-5)}}}$

39. $\frac{x^6-y^6}{x^3+y^3} = \frac{(x^3+y^3)(x^3-y^3)}{(x^3+y^3)} = \underline{\underline{x^3-y^3}}$

40. $\frac{(x-y)^2}{y-x} = \frac{(x-y)(x-y)}{-(x-y)} = \underline{\underline{-(x-y)}} = -x+y = \underline{\underline{y-x}}$

41. $\frac{k^2-14k+48}{k-8} = \frac{(k-8)(k-6)}{(k-8)} = \underline{\underline{k-6}}$

42. $\frac{x^4-4}{(x+1)(x-1)^2} = \underline{\underline{\frac{(x^2+2)(x^2-2)}{(x+1)(x-1)^2}}}$