

Name: _____

Simplifying Rational Expressions with Monomials and Polynomials

To simplify a rational expression:

- ① Check if the numerator and/or denominator can be factored- if one or both can be, factor them
- ② Cancel out factors that both the numerator and denominator have in common
- ③ Write what's left after factors are cancelled and removed → that's your simplified answer

Simplify the rational expressions.

1. $\frac{7x}{7(x-1)}$

2. $\frac{8x}{8(2x+5)}$

3. $\frac{3x}{3(x+7)}$

4. $\frac{4x}{4(6-x)}$

5. $\frac{2x}{2x(x+1)}$

6. $\frac{4x}{4x(x^2-3)}$

7. $\frac{9}{9x(3x+2)}$

8. $\frac{3}{3x(2-x)}$

9. $\frac{7x}{7(x+2)}$

10. $\frac{5x}{5(3x+1)}$

11. $\frac{3x}{3x(x+7)}$

12. $\frac{6x}{6x(3x+7)}$

13. $\frac{8}{16x-24}$

14. $\frac{4}{12+8x}$

15. $\frac{3}{9x-12}$

16. $\frac{2}{6x+10}$

17. $\frac{5}{10x^2-15x}$

18. $\frac{6}{18x-24x^2}$

19. $\frac{4}{12x+16x^2}$

20. $\frac{7}{14x^2+28x}$

21. $\frac{10x+12x^2}{2x^2+8x}$

22. $\frac{9x^2-12x}{15x-3x^2}$

23. $\frac{12x-4x^2}{8x^2+20x}$

24. $\frac{15x-20x^2}{30x^2+5x}$

25. $\frac{x^2-12x+11}{x^2-3x+2}$

26. $\frac{x^2+6x+8}{x^2-3x-10}$

27. $\frac{x^2+7x+10}{x^2+3x+2}$

28. $\frac{x^2-10x+9}{x^2-7x+6}$

29. $\frac{x^2-16}{x^2-5x+4}$

30. $\frac{x^2+8x+15}{x^2-25}$

31. $\frac{x^2-64}{x^2-5x-24}$

32. $\frac{x^2-x-12}{x^2-9}$