



In this worksheet you will learn techniques to simplify algebraic fractions, making them easier to work with. You will practise factoring expressions and cancelling common factors in numerators and denominators. Remember to state any restrictions on the variable where appropriate.

Easy Questions

1. Simplify the algebraic fraction $\frac{8x}{4}$.
2. Simplify the algebraic fraction $\frac{12y}{6}$.
3. Simplify the algebraic fraction $\frac{3x^2}{9x}$.
4. Simplify the algebraic fraction $\frac{5x^2 + 10x}{5x}$.
5. Simplify the algebraic fraction $\frac{2x^2 - 4x}{2x}$.

Intermediate Questions

6. Simplify the algebraic fraction $\frac{2x^2 + 8x}{4x}$.
7. Simplify the algebraic fraction $\frac{3xy + 6y}{3y}$.
8. Simplify the algebraic fraction $\frac{5x^2 + 15x}{5x}$.
9. Simplify the algebraic fraction $\frac{-4x^2 - 8x}{2x}$.
10. Simplify the algebraic fraction $\frac{x^2 + 5x}{x}$.
11. Simplify the algebraic fraction $\frac{6x^2 - 12x}{3x}$.
12. Simplify the algebraic fraction $\frac{8x^2 + 12x}{4x}$.

13. Simplify the algebraic fraction $\frac{10x^2 - 5x}{5x}$.
14. Simplify the algebraic fraction $\frac{x^2 + 3x}{x + 3}$ (state any restrictions).
15. Simplify the algebraic fraction $\frac{7x + 21}{7}$.
16. Simplify the algebraic fraction $\frac{12xy + 18y}{6y}$.
17. Simplify the algebraic fraction $\frac{9x^2 + 27x}{3x}$.
18. Simplify the algebraic fraction $\frac{15x^2 + 5x}{5x}$.
19. Simplify the algebraic fraction $\frac{-6x^2 + 12x}{-3x}$.
20. Simplify the algebraic fraction $\frac{4x^2 - 8x}{2x}$.

Hard Questions

21. Simplify the algebraic fraction $\frac{x^2 + 2x}{x + 2}$ (state any restrictions).
22. Simplify the algebraic fraction $\frac{2x^2 + 5x + 2}{2x + 1}$.
23. Simplify the algebraic fraction $\frac{3x^2 + 9x}{6x + 18}$.
24. Simplify the algebraic fraction $\frac{4x^2 + 12x + 8}{2x + 4}$.
25. Simplify the algebraic fraction $\frac{4x^2 - 9}{2x - 3}$.
26. Simplify the algebraic fraction $\frac{6x^2 - 7x + 2}{2x - 1}$.
27. Simplify the algebraic fraction $\frac{8x^2 + 10x - 3}{4x + 6}$.
28. Simplify the algebraic fraction $\frac{3x^2 - 6x}{9x - 18}$.
29. Simplify the algebraic fraction $\frac{5x^2 - 20}{5x + 10}$.
30. Simplify the algebraic fraction $\frac{4x^2 + 12x + 9}{2x + 3}$.