



A Level Maths

Topic: Algebraic Fractions

Instructions

Answer all questions. Show complete working. Simplify algebraic fractions and solve equations where appropriate.

Practice Questions

1. Simplify the following algebraic fractions:

(i) $\frac{2x^2 + 4x}{2x}$

(ii) $\frac{x^2 - 9}{x^2 - 6x + 9}$

(iii) $\frac{4x^2 + 8x}{2x^2 + 4x}$

(iv) $\frac{x^2 - 16}{x^2 - 4x}$

2. Simplify the expression $\frac{x^2 + 7x + 10}{x^2 + 5x + 6}$.

3. Solve the equation:

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

4. Simplify the following expression:

$$\frac{x^2 - 1}{x^2 + 5x + 4} + \frac{x + 1}{x^2 + 5x + 4}$$

5. Simplify $\frac{3x^2 + 6x}{6x^2 + 12x}$.

6. Solve the equation:

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

7. Simplify the algebraic fraction:

$$\frac{4x^2-9}{2x^2+3x-4}$$

8. Factorise and simplify:

$$\frac{x^2+5x+6}{x^2+3x-10}$$

Multiple-Choice Questions

1. Simplify $\frac{x^2-4}{x^2-3x-4}$:

- A. $\frac{x+2}{x+4}$
- B. $\frac{x-2}{x+4}$
- C. $\frac{x+2}{x-4}$
- D. $\frac{x-2}{x-4}$

2. What is the simplified form of $\frac{x^2-1}{x^2-2x+1}$?

- A. $\frac{(x-1)(x+1)}{(x-1)^2}$
- B. $\frac{x+1}{x-1}$
- C. $\frac{(x-1)^2}{x+1}$
- D. $\frac{x+1}{(x-1)^2}$

3. The solution to the equation $\frac{3x}{x-4} = \frac{5}{x+2}$ is:

- A. $x = 2$
- B. $x = -2$
- C. $x = 4$
- D. $x = 3$