



A Level Maths

Topic: Rational Expressions

Instructions

Answer all questions. Show complete working. Simplify rational expressions and solve equations where applicable.

Practice Questions

1. Simplify the following rational expressions:

(i) $\frac{2x^2 + 6x}{4x}$

(ii) $\frac{3x^2 - 5x + 2}{x^2 - 4}$

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

(iv) $\frac{4x^2 - 9}{2x^2 + 6x}$

2. Solve the equation:

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

3. Simplify the following rational expressions:

$$\frac{x^2 - 9}{x^2 + 5x + 6} + \frac{x + 1}{x^2 + 5x + 6}$$

4. Solve the equation:

$$\frac{2x + 5}{x + 1} = \frac{x - 3}{x + 2}$$

5. Find the value of x for the equation:

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

6. Simplify the rational expression $\frac{x^2 + 7x + 10}{x^2 + 3x + 2}$.

7. Factor and simplify:

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

8. Solve the following rational equation:

$$\frac{x + 1}{x - 2} = \frac{3}{x + 4}$$

Multiple-Choice Questions

1. The simplified form of $\frac{x^2 - 16}{x^2 - 4x}$ is:

A. $\frac{x + 4}{x}$

B. $\frac{x - 4}{x}$

C. $\frac{x + 4}{x - 4}$

D. $\frac{x - 4}{x + 4}$

2. What is the solution to the equation $\frac{3x + 2}{x + 3} = \frac{5x - 1}{x - 2}$?

A. $x = 3$

B. $x = 2$

C. $x = -3$

D. $x = 1$

3. The value of $\frac{2x^2 - 3x - 2}{x^2 - 4x + 3}$ when $x = 1$ is:

A. 1

B. 2

C. 0

D. 3

Visit our website: Mathaversity.com