Algebraic Fractions Exam Practice

Simplifying Fractions

Q1. Simplify fully $\frac{x+5}{x^2+3x-10}$

(2 marks)

Q2. Simplify fully $\frac{x^2-4x}{x^2+4x-32}$

(2 marks)

Q3. Simplify fully $\frac{x^2-9}{x^2-10x+21}$

(2 marks)

Q4. Simplify fully $\frac{2x^2-2x+112}{x^2-3x-40}$

(3 marks)

Q5. Express $\frac{4x^2-9}{2x^2+13x+15} \div \frac{2x^2-3x}{x^2}$ in the form $\frac{x}{x+a}$ where a is to be found.

(3 marks)

Q6. Simplify fully $\frac{1}{x}+\frac{3}{x+1}$

(3 marks)

Q7. Simplify fully: $\frac{10y^2+15y}{5y^2} \times \frac{y^2+4y}{2y+3}$

(3 marks)

Q8. Write the sum $1-\frac{1}{x-2}+\frac{3}{x^2-x-2}$ in the form $\frac{x+c}{x+d}$ where c and d are numbers to be found.

(4 marks)

Solving Fractional Equations

Q9. Solve the equation: $\frac{x-18}{x^2+6x-3} = 2$

(3 marks)

Q10. Solve the equation: $\frac{1}{x^2+3x-10} + \frac{x+5}{x^2+3x-10} = 4$, giving your answers to 3 s.f.

(4 marks)

Q11. a) Express $\frac{y}{y-4} - \frac{28}{y^2-y-12}$ as a fraction, fully simplifying your answer.

(3 marks)

b) Hence solve the equation $\frac{y}{y-4} - \frac{28}{y^2-y-12} = 5$

(3 marks)

Q12. Solve the equation $\frac{14}{a+1} - \frac{8}{3a-2} = 2$

(4 marks)

Q13. a) Solve $\frac{3}{x-4} - \frac{5}{x} = 2$

(3 marks)

b) Hence solve the equation $\frac{3}{2x+1} - \frac{5}{2x+5} = 2$

(2 marks)

Q14. Given that $8 : x + 4 = 28 : x - 3$, find the value of x.

(4 marks)

Q15. a) Solve $\frac{2}{x} - \frac{36}{x(x+8)} = 2$

(4 marks)

b) Hence solve the equation $\frac{2}{3x+1} - \frac{36}{(3x+1)(3x+9)} = 2$

(2 marks)

Q16. Solve $2 + \frac{x+11}{2x^2-5x-3} - \frac{x-1}{x-3} = 0$, where $x \neq -3, x \neq -½$

(5 marks)