



## Algebraic Fractions Exam Practice

### Simplifying Fractions

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

Answer: \_\_\_\_\_  
(2 marks)

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

Answer: \_\_\_\_\_  
(2 marks)



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

Answer: \_\_\_\_\_  
(2 marks)

Q4. Simplify fully  $\frac{x^2 - 4x}{x^2 + 4x - 32}$

Answer: \_\_\_\_\_  
(2 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.

Answer: \_\_\_\_\_  
(3 marks)

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

Answer: \_\_\_\_\_  
(3 marks)



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

Answer: \_\_\_\_\_  
(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.

Answer: \_\_\_\_\_  
(4 marks)



## Solving Fractional Equations

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

Answer: \_\_\_\_\_  
(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.

Answer: \_\_\_\_\_  
(4 marks)



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

Answer: \_\_\_\_\_  
(3 marks)

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

Answer: \_\_\_\_\_  
(3 marks)

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

Answer: \_\_\_\_\_  
(4 marks)



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

Answer: \_\_\_\_\_  
(3 marks)

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

Answer: \_\_\_\_\_  
(2 marks)

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

Answer: \_\_\_\_\_  
(4 marks)



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

Answer: \_\_\_\_\_  
(4 marks)

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

Answer: \_\_\_\_\_  
(2 marks)

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

Answer: \_\_\_\_\_  
(5 marks)