

1 Simplify fully  $\frac{x^2+5x}{x^2+7x+10}$  (2 marks)

2 Simplify fully  $\frac{x^2-x-12}{x^2-9x+20}$  (2 marks)

3 Simplify fully  $\frac{3x^2+9x}{x^2-9}$  (2 marks)

4 Simplify fully  $\frac{x+4}{x^2-16}$  (2 marks)

5 Write  $\frac{3x^2+11x-4}{x^2+3x-4}$  in the form  $\frac{ax+b}{x+c}$  where  $a$ ,  $b$ , and  $c$  are integers. (3 marks)

6 Write  $\frac{x^2+7x-18}{2x^2-x-6}$  in the form  $\frac{x+a}{bx+c}$  where  $a$ ,  $b$ , and  $c$  are integers. (3 marks)

7 Simplify fully  $\frac{3x+6}{x-4} \div \frac{2x^2+9x+10}{x^2-4x}$  (3 marks)

8 Simplify fully  $\frac{2x-2}{x+5} \div \frac{x^2-4x+3}{2x^2+13x+15}$  (3 marks)

9 Solve  $\frac{8}{x+3} + \frac{3}{x+8} = 1$  (4 marks)

10 Solve  $\frac{8}{3x-2} + \frac{6}{x+1} = 2$  (4 marks)

11 Solve  $\frac{2}{5-x} + \frac{3}{x+7} = 1$  (4 marks)

12 Solve  $\frac{7}{x+1} + \frac{4}{3x-2} = 1$

(4 marks)

13 Given that

$$3x + 5 : x + 4 = 2x + 4 : x + 2$$

Find the possible values of  $x$ .

(4 marks)

14 Given that

$$x - 1 : 2x - 3 = x + 2 : 3x - 2$$

Find the possible values of  $x$ .

(4 marks)

15 Given that

$$x + 9 : 5x - 1 = x + 7 : 2x - 3$$

Find the possible values of  $x$ .

(4 marks)

16 Given that

$$5 - 3x : 9 - x = 3x + 7 : 4 - x$$

Find the possible values of  $x$ .

(4 marks)