

Operations with Algebraic Fractions

For Pearson Edexcel GCSE Mathematics (1MA1) • Higher tier

Name _____

Total marks: **30**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

1 Write as a single fraction in its simplest form.

(a) $\frac{2x}{3} + \frac{x-1}{4}$

.....
(2)

(b) $\frac{5}{x} - \frac{2}{3x}$

.....
(2)

(Total for Question 1 is 4 marks)

2 Express $\frac{4}{x+3} + \frac{2}{x-1}$ as a single fraction in its simplest form.

.....
(3)

(Total for Question 2 is 3 marks)

- 3 Express $\frac{3}{x-2} - \frac{x+10}{x^2-4}$ as a single fraction in its simplest form.

.....
(4)

(Total for Question 3 is 4 marks)

- 4 Simplify fully $\frac{2x^2+6x}{x^2-9} \times \frac{x-3}{4x}$

.....
(3)

(Total for Question 4 is 3 marks)

- 5 Show that $\frac{x^2-1}{x^2+3x} \div \frac{x+1}{x}$ simplifies to $\frac{x-1}{x+3}$

(3)

(Total for Question 5 is 3 marks)

- 6 Show that $\frac{3}{x+2} + \frac{1}{2x+4}$ can be written in the form $\frac{a}{bx+c}$ where a , b and c are integers.

(3)

(Total for Question 6 is 3 marks)

- 7 Express $\frac{2}{x+1} + \frac{3}{x-3} - \frac{5}{x}$ as a single fraction in its simplest form.

.....

(3)

(Total for Question 7 is 3 marks)

- 8 Given that

$$\frac{x+k}{x+3} - \frac{2}{x-1} = \frac{x^2+2x-11}{(x+3)(x-1)}$$

find the value of k .

$$k = \dots\dots\dots$$

(4)

(Total for Question 8 is 4 marks)

- 9 Show that $\frac{x^2 - 16}{5x^3} \div \frac{x + 4}{10x}$ can be written in the form $\frac{a(x + b)}{x^2}$ where a and b are integers.

(3)

(Total for Question 9 is 3 marks)
