

Pearson Edexcel

A Level Mathematics 9MA0

Unit Test

2 Partial Fractions

Time allowed: 50 minutes

School:

Name:

Teacher:

Question	Points	Score
1	5	
2	4	
3	5	
4	6	
5	6	
6	5	
7	7	
8	5	
9	7	
Total:	50	



1. Given that

$$\frac{x^2 - 36}{x^2 - 11x + 30} \times \frac{25 - x^2}{Ax^2 + Bx + C} \times \frac{6x^2 + 7x - 3}{3x^2 + 17x - 6} \equiv \frac{x + 5}{6 - x}$$

[5]

find the values of the constants A , B and C , where A , B and C are integers.



2. Express

[4]

$$\frac{6}{4x^2 + 8x - 5} + \frac{3x + 1}{2x - 1}$$

as a single fraction in its simplest form.



3. Show that

[5]

$$\frac{6(x+7)}{(5x-1)(2x+5)}$$

can be written in the form

$$\frac{A}{5x-1} + \frac{B}{2x+5}$$

Find the values of the constants A and B .



4.

[6]

$$f(x) = \frac{4x^2 + x - 23}{(x - 3)(4 - x)(x + 5)}, \quad x > 4$$

Given that $f(x)$ can be expressed in the form

$$\frac{A}{x - 3} + \frac{B}{4 - x} + \frac{C}{x + 5}$$

find the values of A , B and C .



5.

[6]

$$\frac{18x^2 - 98x + 78}{(x - 4)^2(3x + 1)} = \frac{A}{x - 4} + \frac{B}{(x - 4)^2} + \frac{C}{3x + 1}, \quad x > 4$$

Find the values of the constants A , B and C .



6.

[5]

$$\frac{x^3 + 8x^2 - 9x + 12}{x + 6} = Ax^2 + Bx + C + \frac{D}{x + 6}$$

Find the values of the constants A, B, C and D .



7.

[7]

$$f(x) = \frac{x^4 + 2x^3 - 29x^2 - 47x + 77}{x^2 - 2x - 15}$$

Show that $f(x)$ can be written as

$$Px^2 + Qx + R + \frac{V}{x+3} + \frac{W}{x-5}$$

and find the values of P, Q, R, V and W .



8. Find the values of the constants A, B, C, D and E in the following identity:

[5]

$$5x^4 - 4x^3 + 17x^2 - 5x + 7 \equiv (Ax^2 + Bx + C)(x^2 + 2) + Dx + E$$



9.

[7]

$$f(x) = \frac{9x^2 + 25x + 16}{9x^2 - 16}$$

Show that $f(x)$ can be written in the form

$$A + \frac{B}{3x - 4} + \frac{C}{3x + 4},$$

where A, B and C are constants to be found.

