Pearson Edexcel A Level Mathematics 9MA0

Unit Test 2 Partial Fractions

Time allowed: 50 **minutes**

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

School: www.CasperYC.club

Name:

Teacher:

How I can achieve better:

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Last updated: January 11, 2026

1. Given that [5]

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

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.