

QQQ – Pure Year 2 – Chapter 1 – Algebraic Fractions (Version 2)

Total Marks: 23

(23 = Platinum, 21 = Gold, 18 = Silver, 16 = Bronze)

1. The expression

$$\frac{12x^2 + 3x + 7}{3x - 5}$$

can be written as

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

State the value of A

Circle your answer.

[1 mark]

- 3
- 4
- 7
- 9

(Total 1 marks)

AQA June 2024 Paper 1 Q3

2. Express $\frac{13 - x}{(x - 3)(x + 2)}$ in partial fractions.

[3]

(Total 3 marks)

OCR MEI June 2022 Paper 1 Q2

3. Simplify each of the following.

(a) $(2a^2)^3 \times \frac{3}{4}a^{-1}$

[2]

(b) $\frac{4x^2 - 9}{(2x^2 + 5x - 12)(2x + 3)}$

[2]

(Total 4 marks)

OCR A June 2024 Paper 3 Q1

4. Express

$$\frac{3x + 5}{x^2 + x - 12} - \frac{2}{x - 3}$$

as a single fraction in its simplest form.

(4)

(Total 4 marks)

Edexcel C3 June 2013 (R) Q1

5. Given that

$$\frac{3x^4 - 2x^3 - 5x^2 - 4}{x^2 - 4} \equiv ax^2 + bx + c + \frac{dx + e}{x^2 - 4}, \quad x \neq \pm 2$$

find the values of the constants a, b, c, d and e .

(4)

(Total 4 marks)

Edexcel C3 June 2013 Q1

6. Chloe is attempting to write $\frac{2x^2 + x}{(x + 1)(x + 2)^2}$ as partial fractions, with constant numerators.

Her incorrect attempt is shown below.

Step 1	$\frac{2x^2 + x}{(x + 1)(x + 2)^2} \equiv \frac{A}{x + 1} + \frac{B}{(x + 2)^2}$
Step 2	$2x^2 + x \equiv A(x + 2)^2 + B(x + 1)$
Step 3	Let $x = -1 \Rightarrow A = 1$ Let $x = -2 \Rightarrow B = -6$
Answer	$\frac{2x^2 + x}{(x + 1)(x + 2)^2} \equiv \frac{1}{x + 1} - \frac{6}{(x + 2)^2}$

(a) (i) By using a counter example, show that the answer obtained by Chloe cannot be correct.

[2 marks]

(ii) Explain her mistake in Step 1.

[1 mark]

(b) Write $\frac{2x^2 + x}{(x + 1)(x + 2)^2}$ as partial fractions, with constant numerators.

[4 marks]

(Total 7 marks)

AQA June 2020 Paper 1 Q9