

P1 组卷-20260730

Mathematics

Pure Mathematics P1 — Integration

TIME

35 minutes

PAPER REFERENCE(S)

WMA11/01, WMA11/01A

QUESTIONS

4

TOTAL MARKS

27

Jan 2023 · WMA11/01 · Q3 · 5 marks

1. Find

$$\int \frac{4x^5 + 3}{2x^2} dx$$

giving your answer in simplest form.

(5)

Jan 2025 · WMA11/01 · Q1 · 4 marks

2. Find

$$\int \left(8x^3 - 6\sqrt{x} - \frac{2}{5x^3} \right) dx$$

giving your answer in simplest form.

(4)

May 2025 · WMA11/01A · Q10 · 10 marks

3. The curve C has equation $y = f(x)$.

Given that

- $f'(x) = \frac{k\sqrt{x}(x-3)}{5}$ where k is a constant
- the point P with x coordinate 4 lies on C
- the equation of the normal to C at P is $y = -\frac{5}{4}x + 2$

(a) find an equation of the tangent to C at P , giving your answer in the form $y = mx + c$, where m and c are constants,

(3)

(b) find the value of k ,

(2)

3 (continued)

(c) find $f(x)$, writing the answer in simplest form.

(5)

(Total for Question 10 is 10 marks)

Jan 2023 · WMA11/01 · Q11 · 8 marks

4. A curve C has equation $y = f(x)$, $x > 0$

Given that

- $f''(x) = 4x + \frac{1}{\sqrt{x}}$
- the point P has x coordinate 4 and lies on C
- the tangent to C at P has equation $y = 3x + 4$

(a) find an equation of the normal to C at P

(2)

(b) find $f(x)$, writing your answer in simplest form.

(6)

(Total for Question 11 is 8 marks)