

AQA
Pure Mathematics 2
分类真题
2019-2022 册

A Level Clouds 出品

目录

Chapter 1 Functions	1
Chapter 2 Binomial Series	16
Chapter 3 Trigonometric Functions and Formulae	27
Chapter 4 Exponential and Logarithmic Functions	42
Chapter 5 Differentiation	45
Chapter 6 Integration	70
Chapter 7 Differential Equations	92
Chapter 8 Numerical Methods	104
Chapter 9 Vectors	119

Chapter 1

Functions

3 (a) The polynomial $f(x)$ is defined by

$$f(x) = 4x^3 + bx^2 + cx + 6$$

where b and c are constants.

When $f(x)$ is divided by $(2x - 3)$ the remainder is -6

When $f(x)$ is divided by $(2x + 1)$ the remainder is 10

Find the value of b and the value of c .

[4 marks]

3 (b) Simplify $\frac{4x^2 - 1}{4x^2 + 4x - 3}$, giving your answer in the form $1 + g(x)$.

[4 marks]

Answer _____

9 The function f is defined by

$$f(x) = |x^2 - 5| - 3 \text{ for } -5 \leq x \leq 5$$

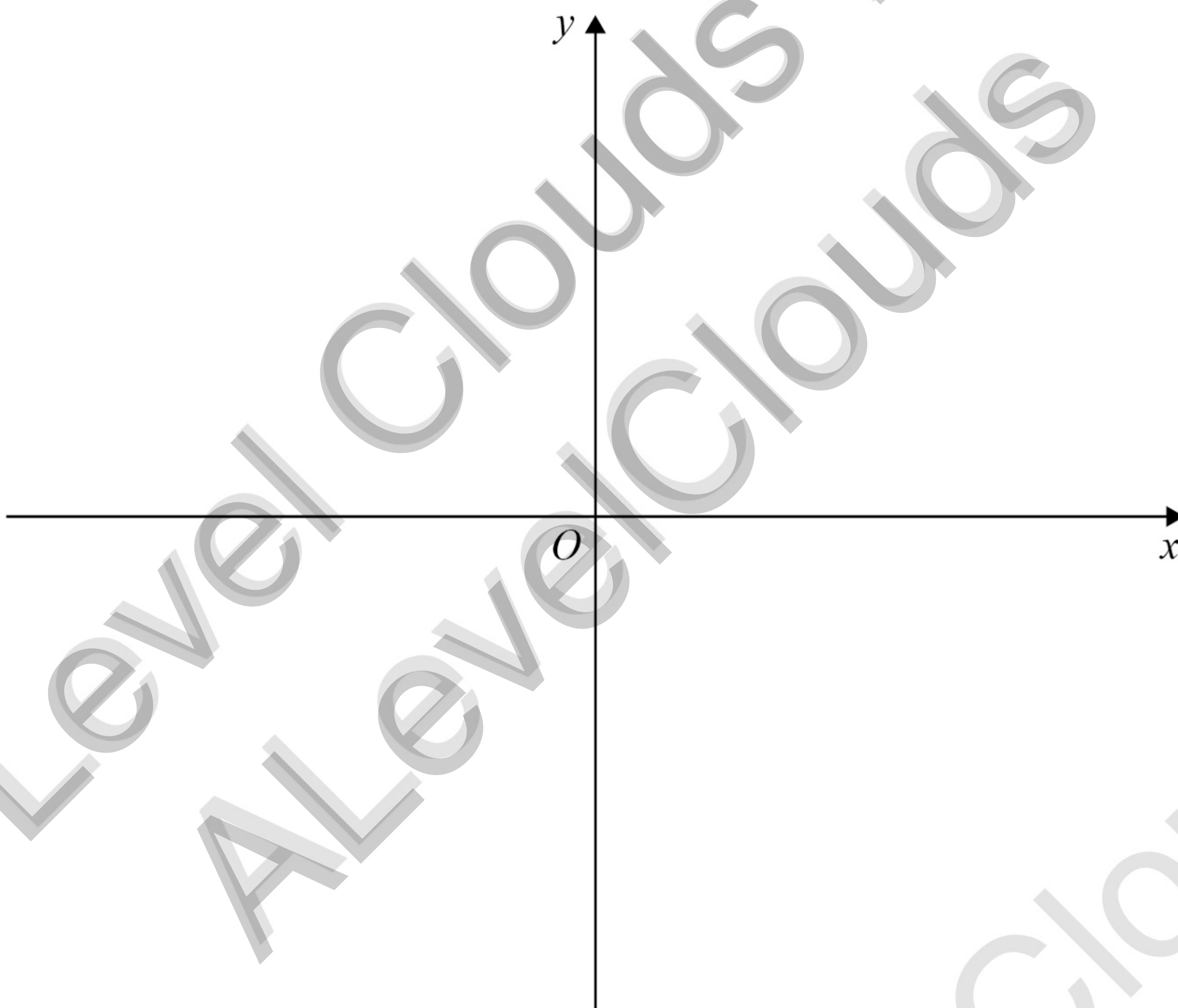
9 (a) (i) Write down the range of f .

[1 mark]

Answer _____

9 (a) (ii) Sketch the graph of $y = f(x)$, indicating the value where the curve crosses the y -axis.

[3 marks]



9 (a) (iii) Solve $f(x) = 1$

[3 marks]

Answer _____

9 (b) The function g is defined by

$$g(x) = \frac{1}{x} \quad \text{where } x \neq 0$$

9 (b) (i) Find an expression for $fg(x)$.

[1 mark]

Answer _____

9 (b) (ii) Solve $fg(x) < 0$

[3 marks]

Answer _____

- 4 (a)** The polynomial $f(x)$ is defined by

$$f(x) = 8x^3 + bx^2 + cx + 6$$

where b and c are constants.

When $f(x)$ is divided by $(2x - 1)$ the remainder is 5.25

When $f(x)$ is divided by $(2x - 3)$ the remainder is -3.75

Find the value of b and the value of c .

[4 marks]

$$b = \underline{\hspace{2cm}} \quad c = \underline{\hspace{2cm}}$$

4 (b) Show that $\frac{12x^3 - 8x^2 + x + 7}{4x^2 - 1}$ can be written in the form $3x + d + \frac{ex + f}{4x^2 - 1}$
where d , e and f are integers.

[4 marks]

1

The functions f and g are defined with their respective domains by

$$f(x) = x - 5 \quad \text{for all real values of } x$$

$$g(x) = \frac{25}{x+4} \quad \text{for all real values of } x, \quad x \neq -4$$

The composite function fg is denoted by h

1 (a)

Find $h(x)$ giving your answer as a single fraction.

[2 marks]

Answer

1 (b) The inverse of h is h^{-1}

1 (b) (i) Find $h^{-1}(x)$

[3 marks]

Answer _____

1 (b) (ii) Find the range of h^{-1}

[1 mark]

Answer _____

- 3 The polynomial $f(x)$ is defined by $f(x) = 8x^3 + ax^2 + bx + 6$ where a and b are constants.

When $f(x)$ is divided by $(2x - 1)$ the remainder is 6

When $f(x)$ is divided by $(2x + 1)$ the remainder is 9

- 3 (a) Find the value of a and the value of b

[4 marks]

- 3 (b) Use the Factor Theorem to prove that $(2x + 3)$ is a factor of $f(x)$

[1 mark]