

2.1 Polynomials

Question Paper

Course	Edexcel IAL Maths: Pure 2
Section	2. Algebra & Functions
Topic	2.1 Polynomials
Difficulty	Medium

Time allowed: 40

Score: /33

Percentage: /100

Question 1

Divide $x^3 - 6x^2 - 9x + 14$ by $(x - 7)$.

[2 marks]**Question 2**

$$f(x) = 2x^3 - x^2 - 16x + 15$$

(a) Find the remainder when $f(x)$ is divided by $(x - 2)$.

[2 marks]**Question 2**

(b) Given that $(x + 3)$ is a factor of $f(x)$, factorise $f(x)$ completely.

[4 marks]

Question 3

$$f(x) = 2x^3 - 3x^2 - 72x - 35$$

(a) Show that $f(x) = (2x + 1)(ax^2 + bx + c)$ where a , b and c are constants to be found.

[2 marks]**Question 3**

(b) Hence factorise $f(x)$ completely.

[4 marks]**Question 3**

(c) Write down all the real roots of the equation $f(x) = 0$.

[2 marks]

Question 4

$$f(x) = 4x^3 + 4x^2 - 23x - 30$$

(a) Use the factor theorem to show that $(x + 2)$ is a factor of $f(x)$.

[2 marks]**Question 4**

(b) Factorise $f(x)$ completely.

[4 marks]**Question 4**

(c) Write down all the real roots of the equation $f(x) = 0$.

[2 marks]

Question 5

$f(x) = x^3 + 9x^2 + rx + s$. Given that $f(2) = 0$ and $f(-1) = -54$:

(a) find the values of r and s .

[6 marks]

Question 5

(b) Factorise $f(x)$ completely.

[3 marks]