Algebra
Difficulty: Hard

Question Paper 4

Level	A Level
Subject	Maths Pure 3
Exam Board	CIE
Topic	Algebra
Difficulty	Hard
Booklet	Question Paper 4

Time allowed: 53 minutes

Score: /38

Percentage: /100

Grade Boundaries:

A*	A	B	C	D	E
>90%	81%	70%	58%	46%	34%

(i) Express $\dfrac{9 - 7x + 8x^2}{(3 - x)(1 + x^2)}$ in partial fractions. [5]

(ii) Hence obtain the expansion of $\dfrac{9 - 7x + 8x^2}{(3 - x)(1 + x^2)}$ in ascending powers of x, up to and including the term in x^3. [5]

Let $f(x) = \dfrac{2x^2 - 7x - 1}{(x-2)(x^2+3)}$.

(i) Express $f(x)$ in partial fractions. [5]

(ii) Hence obtain the expansion of $f(x)$ in ascending powers of x, up to and including the term in x^2. [5]

(i) Express $\dfrac{7x^2 + 8}{(1 + x)^2(2 - 3x)}$ in partial fractions. [5]

(ii) Hence expand $\dfrac{7x^2 + 8}{(1 + x)^2(2 - 3x)}$ in ascending powers of x up to and including the term in x^2, simplifying the coefficients. [5]

Let $f(x) = \dfrac{x^2 - 8x + 9}{(1-x)(2-x)^2}$

(i) Express $f(x)$ in partial fractions. [5]

(ii) Hence obtain the expansion of $f(x)$ in ascending powers of x, up to and including the term in x^2. [5]