

- 7 (a) Expand $(1 + 2x^2)^{-\frac{3}{4}}$ in ascending powers of x up to and including the term in x^6

Express each coefficient as an exact fraction in its lowest terms.

(3)

$$f(x) = \frac{(2 + kx)^{\frac{3}{4}}}{(1 + 2x^2)^{\frac{3}{4}}} \quad \text{where } k \neq 0$$

- (b) Obtain a series expansion for $f(x)$ in ascending powers of x up to and including the term in x^5

Give each coefficient in terms of k where appropriate.

(2)

The coefficient of the term in x^5 is fourteen times the coefficient of the term in x^2

- (c) Find the value of k

(2)

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Question 7 continued

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(Total for Question 7 is 7 marks)

