

10. Given that

$$\frac{4x^2 - x + 1}{(1-x)(1-2x)} \equiv A + \frac{B}{1-x} + \frac{C}{1-2x}$$

(a) find the value of each of the constants A , B and C .

(4)

(b) Hence find the series expansion in ascending powers of x , up to and including the term in x^2 , of

$$\frac{4x^2 - x + 1}{(1-x)(1-2x)}$$

giving each term in simplest form.

(5)

(c) Find the range of values of x for which the expansion in part (b) is valid.

(1)