Daily Question – Pure Mathematics - Day 1

Topic: Partial Fractions/ Binomial Expansion / validy

(a)

(i) Find the binomial expansion of $(1 + x)^{-1}$ up to the term in x^3.

(2)

(ii) Hence, or otherwise, obtain the binomial expansion of $\frac{1}{1+3x}$ up to the term in x^3.

(2)

(b) Express $\frac{1+4x}{(1+x)(1+3x)}$ in partial fractions.

(3)

(c)

(i) Find the binomial expansion of $\frac{1+4x}{(1+x)(1+3x)}$ up to the term in x^3.

(3)

(ii) Find the range of values of x for which the binomial expansion of $\frac{1+4x}{(1+x)(1+3x)}$ is valid.

(2)

(Total 12 marks)