5 Given that $\frac{1}{\sqrt{4-x}}$ can be written as $p(1-qx)^{-\frac{1}{2}}$

(a) find the value of p and the value of q.

(2)

(b) (i) Find the first four terms in the expansion of $\frac{1}{\sqrt{4-x}}$ in ascending powers of x, simplifying each term.

(ii) State the range of values of x for which this expansion is valid.

(4)

Given that the first three terms of the expansion of $\frac{2(1+x)}{\sqrt{4-x}}$ are $a + bx + cx^2$

(c) find the exact value of

(i) a (ii) b (iii) c

(3)

Question 5 continued

Question 5 continued

Question 5 continued

(Total for Question 5 is 9 marks)