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

Simplify each term as far as possible.

(3)

(b) Show that $\frac{1}{\sqrt{0.96}} = \frac{5\sqrt{6}}{12}$

Show all your working clearly.

(2)

(c) Express $\frac{1}{5\sqrt{6}-12}$ in the form $\frac{a\sqrt{6}}{c} + b$ where a, b and c are integers.

Show all your working clearly.

(2)

Using the expansion you found in part (a) with a suitable value of x

(d) find an estimate, to 5 decimal places, of $\frac{9}{5\sqrt{6}-12}$

(4)

Question 9 continued

Question 9 continued

Question 9 continued

(Total for Question 9 is 11 marks)