8 (a) Expand $\frac{3}{\sqrt{1-2x}}$ in ascending powers of x up to and including the term in x^3 and simplifying each term as far as possible.

(4)

(b) Write down the range of values of x for which this expansion is valid.

(1)

(c) Show that $\frac{3}{\sqrt{0.9}} = \sqrt{10}$

(1)

(d) Express $\frac{1}{\sqrt{10}-3}$ in the form $a\sqrt{10} + b$, where a and b are integers.

(2)

(e) Hence, using your expansion with a suitable value for x, obtain an approximation to 5 decimal places of $\frac{1}{\sqrt{10}-3}$

(3)

Question 8 continued

(Total for Question 8 is 11 marks)