

- 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)

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**Question 9 continued**

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**Question 9 continued**

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**(Total for Question 9 is 11 marks)**

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