

- 7 (a) Expand $\left(1 + \frac{2x}{5}\right)^{\frac{1}{2}}$ in ascending powers of x up to and including the term in x^3 , giving each coefficient as an exact fraction in its lowest terms. (3)

- (b) Expand $\left(1 - \frac{2x}{5}\right)^{-\frac{1}{2}}$ in ascending powers of x up to and including the term in x^3 , giving each coefficient as an exact fraction in its lowest terms. (3)

- (c) Write down the range of values of x for which both of your expansions are valid. (1)

- (d) Expand $\left(\frac{5+2x}{5-2x}\right)^{\frac{1}{2}}$ in ascending powers of x up to and including the term in x^2 , giving each coefficient as an exact fraction in its lowest terms. (3)

- (e) Hence use algebraic integration to obtain an estimate of

$$\int_{0.1}^{0.3} \left(\frac{5+2x}{5-2x}\right)^{\frac{1}{2}} dx$$

Give your answer to 4 significant figures.

(4)

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Question 7 continued

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Question 7 continued

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Question 7 continued**(Total for Question 7 is 14 marks)**

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