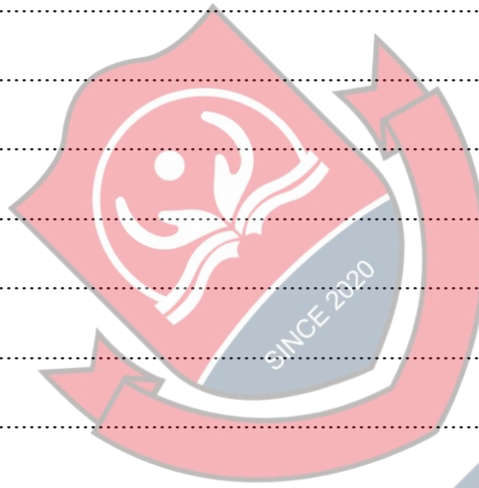


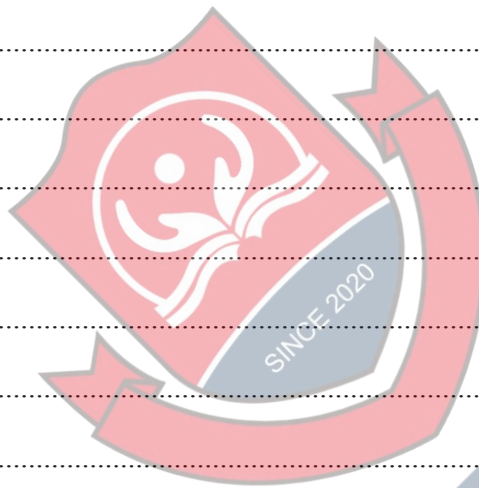
Cambridge International AS & A Level

1 Solve the inequality $|5x + 7| > |2x - 3|$.

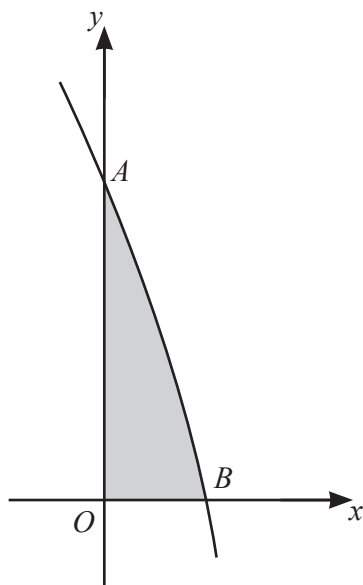
[4]



- 2 Use logarithms to solve the equation $6^{2x-1} = 5e^{3x+2}$. Give your answer correct to 4 significant figures. [4]



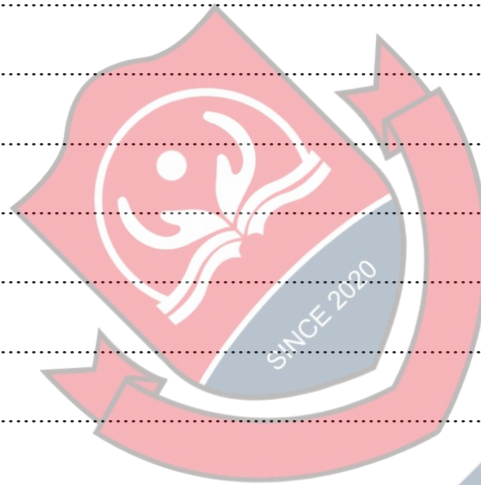
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A curve with equation $y = 8e^{-x} - e^{2x}$. The shaded region is bounded by the curve at A .

- 

- (b) Show that the x -coordinate of B is $\ln 2$ and hence find the area of the shaded region. [5]



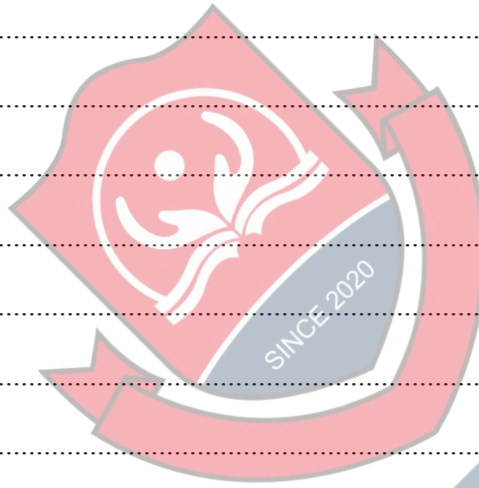
- 4** A curve is defined by the parametric equations

$$x = 4 \cos^2 t, \quad y = \sqrt{3} \sin 2t,$$

for values of t such that $0 < t < \frac{1}{2}\pi$.

Find the equation of the normal to the curve at the point for which $t = \frac{1}{6}\pi$. Give your answer in the form $ax + by + c = 0$ where a , b and c are integers. [7]





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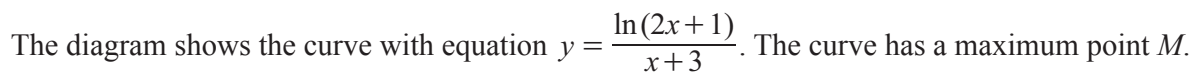
5 The polynomial $p(x)$ is defined by $p(x) = 9x^3 + 18x^2 + 5x + 4$.

- (a) Find the quotient when $p(x)$ is divided by $(3x + 2)$, and show that the remainder is 6. [3]



- (b) Find the value of $\int_0^2 \frac{p(x)}{3x+2} dx$, giving your answer in the form $a + \ln b$ where a and b are integers. [5]





- 

- 40

- (c) Show by calculation that the x -coordinate of M lies between 2.5 and 3.0 . [2]



- (d) Use an iterative formula based on the equation in part (b) to find the x-coordinate of M correct to 4 significant figures. Give the result of each iteration to 6 significant figures. [3]

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7 (a) Prove that $2 \sin \theta \operatorname{cosec} 2\theta \equiv \sec \theta$.

[2]

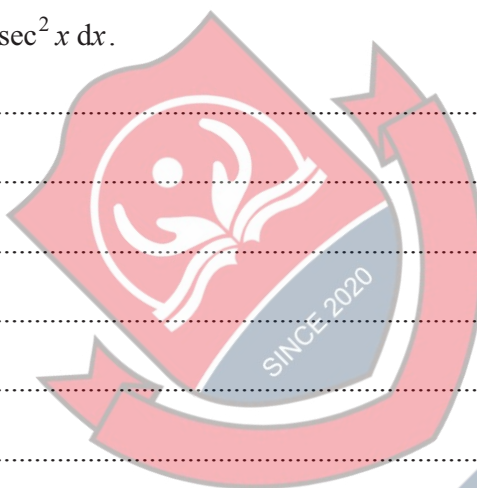


(b) Solve the equation $\tan^2 \theta + 7 \sin \theta \operatorname{cosec} 2\theta = 8$ for $-\pi < \theta < \pi$.

[5]

(c) Find $\int 8 \sin^2 \frac{1}{2} x \operatorname{cosec}^2 x \, dx$.

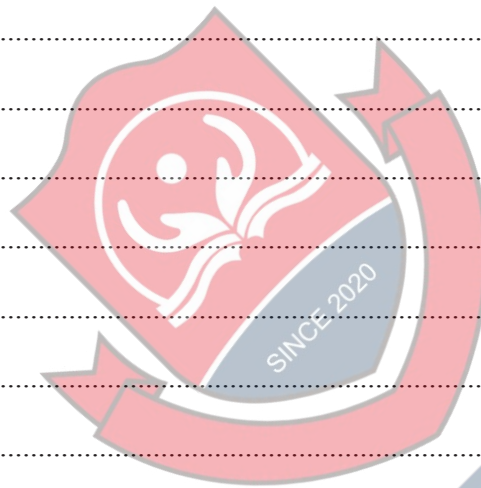
[3]



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Additional page

If you use the following page to complete the answer to any question, the question number must be clearly shown.



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