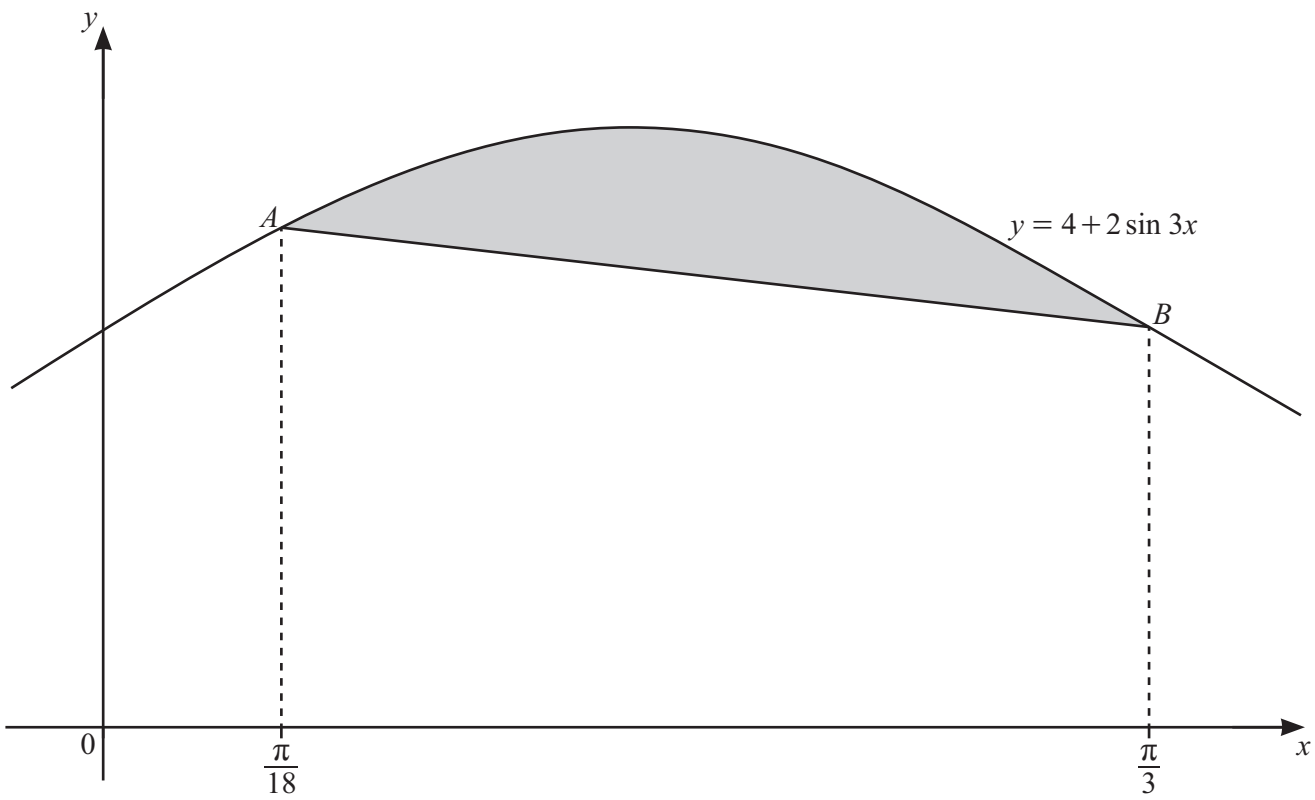
11



The diagram shows part of the curve $y = 4 + 2\sin 3x$ and the straight line AB. The points A and B lie on the curve. The x-coordinate of A is $\frac{\pi}{18}$ and the x-coordinate of B is $\frac{\pi}{3}$. Find the area of the shaded region, giving your answer in exact form. [9]

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Continuation of working space for Question 11.

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12 **(a)** Solve the equation $2\operatorname{cosec}^2\theta - 5 = 5\cot\theta$ for $-180° \leqslant \theta \leqslant 180°$. [7]

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