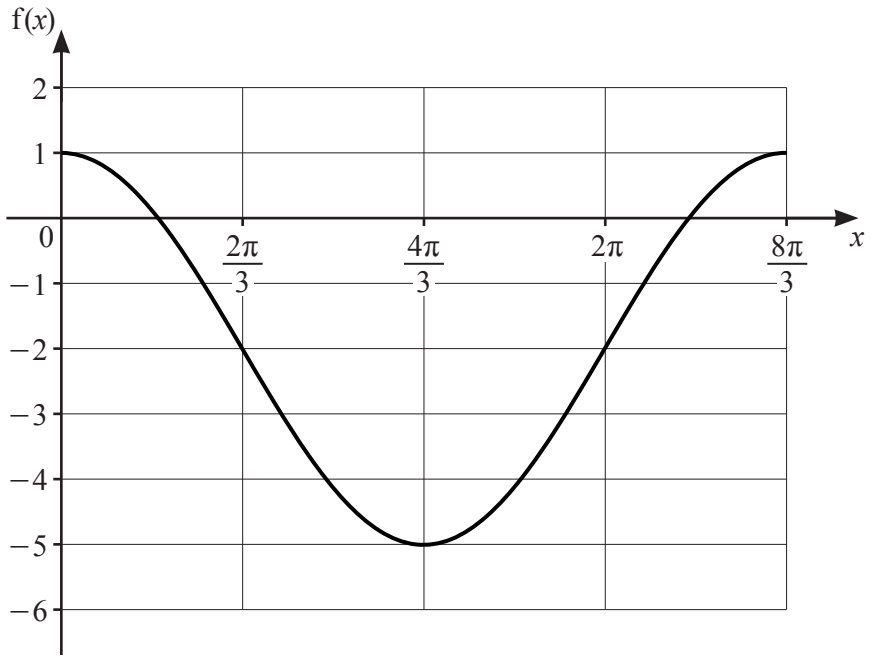
8



The diagram shows the graph of $f(x) = a\cos bx + c$ for $0 \leqslant x \leqslant \frac{8\pi}{3}$ radians.

(a) Explain why f is a function. [1]

(b) Write down the range of f. [1]

(c) Find the value of each of the constants a, b and c. [4]

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9 Variables x and y are such that $y = \dfrac{e^{3x}\sin x}{x^2}$. Use differentiation to find the approximate change in y as x increases from 0.5 to $0.5 + h$, where h is small. [6]