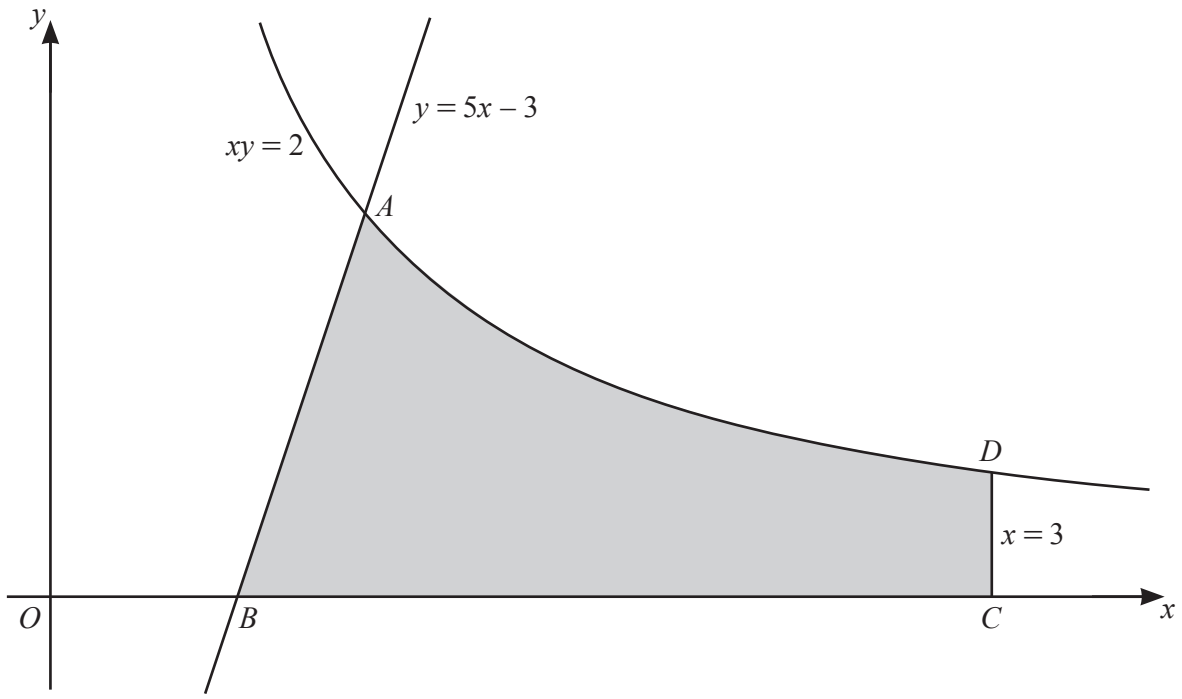
9



The diagram shows part of the curve $xy = 2$ intersecting the straight line $y = 5x - 3$ at the point A. The straight line meets the x-axis at the point B. The point C lies on the x-axis and the point D lies on the curve such that the line CD has equation $x = 3$. Find the exact area of the shaded region, giving your answer in the form $p + \ln q$, where p and q are constants. [8]

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Additional working space for question 9.

10 **(a)** Given that $y = x\sqrt{x+2}$, show that $\frac{\mathrm{d}y}{\mathrm{d}x} = \frac{Ax+B}{2\sqrt{x+2}}$, where A and B are constants. [5]

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