

Advanced Higher Maths
SQA 2023 Paper 1
Question 5

Find the particular solution of the differential equation

$$\frac{d^2y}{dx^2} - 4\frac{dy}{dx} - 5y = 10x^2 + 11x - 23$$

given that $y = 2$, $\frac{dy}{dx} = 14$ when $x = 0$.

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Answer:

$$y = 2e^{5x} - 3e^{-x} - 2x^2 + x + 3$$