

Advanced Higher Maths  
SQA 2017 Paper  
Question 14

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Find the particular solution of the differential equation

$$\frac{d^2y}{dx^2} - 6\frac{dy}{dx} + 9y = 8 \sin x + 19 \cos x$$

given that  $y = 7$  and  $\frac{dy}{dx} = \frac{1}{2}$  when  $x = 0$ .

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Answer:

$$y = 5e^{3x} - 14xe^{3x} - \frac{1}{2}\sin x + 2\cos x$$