

## How to get marks for AQA Core 4 Differential Equation questions

1. Correct separation of variables (x terms on one side, y terms on the other)
2. Correctly integrate one side
3. Correctly integrate the other side
4. Find C
5. Put together and rearrange into required form

(Note that there may be more marks available if question is more complicated)

### How to get marks for AQA Core 4 Differential Equation Questions

Question & initial condition	$\frac{dx}{dt} = \frac{1}{15x\sqrt{2x-1}}$  $t = 0, x = 1$	$\frac{dy}{dx} = \frac{x\sqrt{x^2+3}}{e^{2y}}$  $y = 0, x = 1$	$\frac{dx}{dt} = \frac{t \cos\left(\frac{\pi}{4}t\right)}{32x}$  $t = 0, x = 4$	$\frac{dy}{dx} = \frac{16xe^{2y}}{(1-3x)(1+x)^2}$  $y = 0, x = 0$	$\frac{dx}{dt} = \frac{\sqrt{4+5x}}{5(1+t)^2}$  $t = 0, x = 0$
Separation of variables					
Correctly integrate one side					
Correctly integrate the other side					
Find C					
Put together and rearrange into required form	$t =$	$y =$	$t = 45, x =$	$f(y) = g(x)$	$x =$
Exam Paper Ref.	Jun 12 (8b)	Jan 13 (5b)	June 13 (8b)	June 14 (8b)	June 15 (8a)

## How to get marks for AQA Core 4 Differential Equation Questions - **Answers**

Question & initial condition	$\frac{dx}{dt} = \frac{1}{15x\sqrt{2x-1}}$  $t = 0, x = 1$	$\frac{dy}{dx} = \frac{x\sqrt{x^2+3}}{e^{2y}}$  $y = 0, x = 1$	$\frac{dx}{dt} = \frac{t \cos\left(\frac{\pi}{4}t\right)}{32x}$  $t = 0, x = 4$	$\frac{dy}{dx} = \frac{16xe^{2y}}{(1-3x)(1+x^2)}$  $y = 0, x = 0$	$\frac{dx}{dt} = \frac{\sqrt{4+5x}}{5(1+t)^2}$  $t = 0, x = 0$
Separation of variables					
Correctly integrate one side					
Correctly integrate the other side					
Find C					
Put together and rearrange into required form	$t =$	$y =$	$t = 45, x =$	$f(y) = g(x)$	$x =$
Exam Paper Ref.	Jun 12 (8b)	Jan 13 (5b)	June 13 (8b)	June 14 (8b)	June 15 (8a)