

Solutions

Each answer shows the steps, then the **result**.

2.1

- $\frac{dy}{dx} = 5e^{5x}$; this equals $5y = 5e^{5x}$, so it is a solution

2.2

- $\frac{dy}{dt} = -4e^{-t}$; and $-y = -4e^{-t}$, so they match

2.3

- $\frac{dy}{dx} = 3Ce^{3x} = 3y$

3.1 C

- $\frac{d}{dx}e^{2x} = 2e^{2x} = 2y$

3.2

(a)

- $\frac{dy}{dx} = 2x + 3$

(b)

- $6 = 1 + 3 + C \Rightarrow C = 2$

3.3

- $\frac{dy}{dx} = 2 \cos(2x)$; $\frac{d^2y}{dx^2} = -4 \sin(2x)$; this equals $-4y = -4 \sin(2x)$