

Math 3350

Home Work 1

①

① Solve the following differential equation

$$20 \frac{dv}{dt} + v = f(t)$$

where $v(0) = 100$ assuming.

Ⓐ $f(t) = 0$

Ⓑ $f(t) = 10$

Ⓒ $f(t) = 5 \sin 30t$

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② solve the following differential equation

$$10 \frac{d^2 x}{dt^2} + 20x = f(t).$$

where $x(0) = 5$, $\frac{dx(0)}{dt} = 15$

① $f(t) = 0$

② $f(t) = 10$

③ $f(t) = \sin 30t$.