Spring 2018-2019
Math 342
Applied Mathematics

Feb 11
Show that the given function is the solution of the corresponding equation.

1. $y(x) = x + \int_0^{1/4} y(t)dt$; $y(x) = x + \frac{1}{24}$

2. $y(x) = x + \int_0^1 xty^2(t)dt$; $y(x) = 2x$

3. $y'(x) = 2x - x^4 + \int_0^x 4ty(t)dt$, $y(0) = 0$; $y(x) = x^2$

4. $\int_0^x (x-t)^2 y(t)dt = x^3$; $y(x) = 3$

5. $y(x) = e^x + e^{-x} - \frac{x}{2}\left(e^x - e^{-x}\right) - 1 + \int_0^x ty(t)dt$; $y(x) = \frac{1}{2}\left(e^x + e^{-x}\right)$