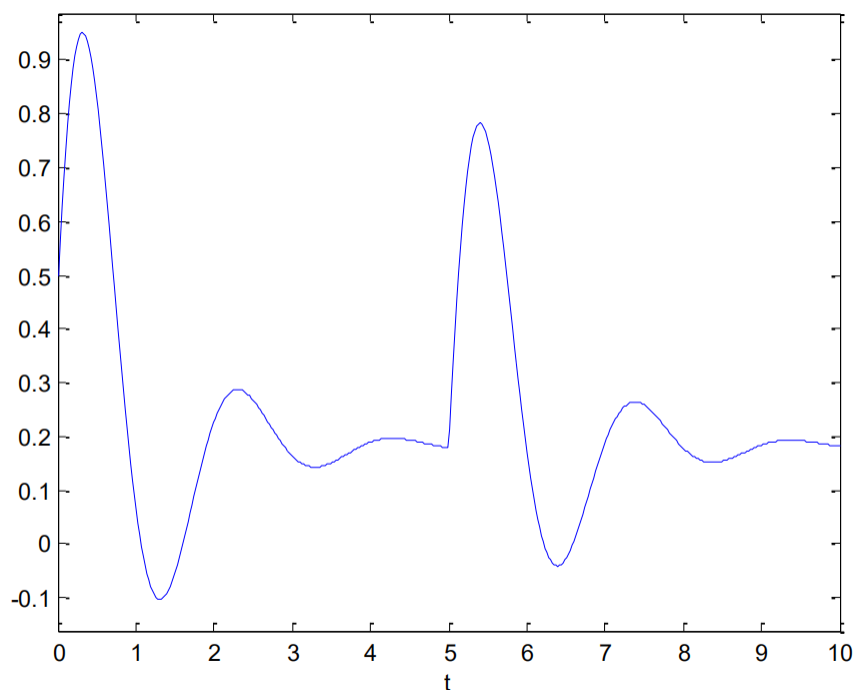# 2020 Differential Equation Python Quiz 7 (BONUS)

This is a bonus quiz. You can skip it, and it will not affect your final grade. However, if you choose to do it, it can substitute one of your lowest grades.

1. Find the Laplace transform of $f(t) = 6e^{-3t} - 4\cos 5t$ (20 points)

2. Find the inverse Laplace transform of $F(s) = \frac{6+2s}{s^4}$ (20 points)

3. Find the Laplace transform of   (20 points)

$$f(x) = \begin{cases} 1, & 0 \le t < 2 \\ 2t - 3, & 2 \le t < 4 \\ 3, & 4 \le t \end{cases}$$

4. Use Laplace transform to solve y(t) and plot it between 0 and 10   (40 points)

$$y'' + 2y' + 11y = 2 + 3\delta(t - 5), \quad y(0) = 0.5, \quad y'(0) = 3$$

5. Find Laplace transform of shift unit step function $f(t) = u(t - a)$ (10 points)

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Submit your file as "StudentID_python_quiz7.py" to New E3
before Monday(12/28) 12:00am.
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