Assignment Math45-Module-10-Exercises due 10/22/2020 at 11:59pm PDT

- **1.** (1 point) If we wanted to verify that $y = c_1 \sin(x) + c_2 \cos(x) + 2 + x^2$ is a general solution for the differential equation $y'' + y = 4 + x^2$, then what must we check? Mark all that are necessary.
 - A. $y_1 = \sin(x)$, $y_2 = \cos(x)$ are continuous functions.
 - B. $y_1 = 2$, $y_2 = x^2$ are linearly independent.
 - C. $y_1 = \sin(x)$, $y_2 = \cos(x)$ are a fundamental set of solutions for y'' + y = 0.
 - D. $y_p = 2 + x^2$ is a particular solution for $y'' + y = 4 + x^2$.
 - E. $y_1 = 2$, $y_2 = x^2$ are continuous functions.
 - F. None of the above
- **2.** (1 point) If we wanted to verify that $y = c_1 \sin(x) + c_2 \cos(x) + e^x$ is a general solution for the differential equation $y'' + y = 2e^x$, then what must we check? Mark all that are necessary.

- A. $y_1 = 2$, $y_2 = x^2$ are continuous functions.
- B. $y_p = e^x$ is a particular solution for $y'' + y = 2e^x$.
- C. $y_1 = 2$, $y_2 = x^2$ are linearly independent.
- D. $y_1 = \sin(x)$, $y_2 = \cos(x)$ are continuous functions.
- E. $y_1 = \sin(x)$, $y_2 = \cos(x)$ consists of two functions.
- F. $y_1 = \sin(x)$, $y_2 = \cos(x)$ are linearly independent.
- G. $y_1 = \sin(x)$, $y_2 = \cos(x)$ are solutions for y'' + y = 0.
- H. None of the above
- 3. (1 point) Enter a value for π 3.14159

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