Matthew Mendoza **Math-45-Krauel-F20**

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

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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

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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

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3. (1 point)
Enter a value for π

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