

Quiz 10

The Method of Undetermined Coefficients

(10 points) If the method of undetermined coefficients is to be used, the suitable form for a particular solution $y_p(t)$ of the differential equation

$$y^{(4)} - y = e^{-t} + 3 \sin(t)$$

is

- (A) $y_p(t) = Ate^{-t} + B \cos(t) + C \sin(t)$
- (B) $y_p(t) = At^2e^{-t} + B \cos(t) + C \sin(t)$
- (C) $y_p(t) = Ate^{-t} + Bt \cos(t) + Ct \sin(t)$
- (D) $y_p(t) = At^2e^{-t} + Bt \cos(t) + Ct \sin(t)$
- (E) $y_p(t) = Ate^{-t} + Bt \sin(t)$

The Method of Variation of Parameter

(10 points) Using the method of variation of parameter, a particular solution to

$$y'' + 16y = 4 \sec(4t)$$

is $y_p(t) = u_1(t) \cos(4t) + u_2(t) \sin(4t)$. Then $u_2(t) =$

- (A) 1 (B) t (C) $\ln |\sin(4t)|$ (D) $\ln |\cos(4t)|$ (E) $\sec(4t)$

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