

1. (1 point)

- (1) Find a particular solution to the nonhomogeneous differential equation $y'' + 4y' + 4y = 8x^2 + 4x + 8$. (Note: it might be better to first do part (b) before part (a).)

$y_p =$ _____ help (formulas)

- (2) Find the most general solution to the associated homogeneous differential equation. Use c_1 and c_2 in your answer to denote arbitrary constants, and enter them as c_1 and c_2 .

$y_c =$ _____ help (formulas)

- (3) Find the most general solution to the original nonhomogeneous differential equation. Use c_1 and c_2 in your answer to denote arbitrary constants.

$y =$ _____ help (formulas)

2. (1 point)

- (1) Find a particular solution to the nonhomogeneous differential equation $y'' - y' = -5$. (Note: it might be better to first do part (b) before part (a).)

$y_p =$ _____ help (formulas)

- (2) Find the most general solution to the associated homogeneous differential equation. Use c_1 and c_2 in your answer to denote arbitrary constants, and enter them as c_1 and c_2 .

$y_c =$ _____ help (formulas)

- (3) Find the most general solution to the original nonhomogeneous differential equation. Use c_1 and c_2 in your answer to denote arbitrary constants.

$y =$ _____ help (formulas)

3. (1 point) Solve the following differential equation by variation of parameters. Fully evaluate all integrals.

$$y'' + 9y = \sec(3x).$$

- (1) Find the most general solution to the associated homogeneous differential equation. Use c_1 and c_2 in your answer to denote arbitrary constants, and enter them as c_1 and c_2 .

$y_c =$ _____ help (formulas)

- (2) Find a particular solution to the nonhomogeneous differential equation $y'' + 9y = \sec(3x)$.

$y_p =$ _____ help (formulas)

- (3) Find the most general solution to the original nonhomogeneous differential equation. Use c_1 and c_2 in your answer to denote arbitrary constants.

$y =$
_____ help (formulas)

4. (1 point) Solve the following differential equation by variation of parameters. Fully evaluate all integrals.

$$y'' - 4y = xe^{2x}.$$

- (1) Find the most general solution to the associated homogeneous differential equation. Use c_1 and c_2 in your answer to denote arbitrary constants, and enter them as c_1 and c_2 .

$y_c =$ _____ help (formulas)

- (2) Find a particular solution to the nonhomogeneous differential equation $y'' - 4y = xe^{2x}$.

$y_p =$ _____ help (formulas)

- (3) Find the most general solution to the original nonhomogeneous differential equation. Use c_1 and c_2 in your answer to denote arbitrary constants.

$y =$
_____ help (formulas)