

## Section 3.5 of Edwards and Penney

1. (1 pt) Use the method of undetermined coefficients to find one solution of

$$y'' + 3y' - 2y = 2e^{2t}.$$

$y =$  \_\_\_\_\_

(It doesn't matter which specific solution you find for this problem.)

Correct Answers:

- $(1/4) * \exp((2)*t) + c * e^{(0.56155281280883*t)} + d * e^{(-3.56155281280883*t)}$

2. (1 pt) Find a particular solution to the differential equation

$$-3y'' + 2y' + 1y = -2t^2 - 1t + 5e^{-4t}.$$

$y_p =$  \_\_\_\_\_

Correct Answers:

- $-2*(t**2) + 7*(t) + -26 + -0.0909090909090909 \exp(-4*t) + a*\exp(1*t) + b*(\exp(-0.3333333333333333*t) + 0*t*\exp(-0.3333333333333333*t))$

3. (1 pt) Find a particular solution to

$$y'' + 4y' + 4y = -14e^{-2t}.$$

$y_p =$  \_\_\_\_\_

Correct Answers:

- $(-14/2)*(t**2)*\exp(-2*t) + a*e^{(-2*t)} + b*t*e^{(-2*t)}$

4. (1 pt) Find a particular solution to the differential equation

$$y'' - 4y' + 3y = 9t^3.$$

$y_p =$  \_\_\_\_\_

Correct Answers:

- $3*(t**3) + 12*(t**2) + 26*t + 26.66666666666667 + a*e^{(1*t)} + b*(e^{(3*t)} + 0*t*e^{(1*t)})$

5. (1 pt) Find a particular solution to

$$y'' + 5y' + 6y = 20te^{2t}.$$

$y_p =$  \_\_\_\_\_

Correct Answers:

- $(1*t + -0.45) * ((2.71828182845905)**(2*t)) + a*e^{(-2*t)} + b*e^{(-3*t)}$

6. (1 pt) Find the solution of

$$y'' + 12y' + 35y = 24e^{-4t}$$

with  $y(0) = 9$  and  $y'(0) = 4$ .

$y =$

Correct Answers:

- $(8) * \exp((-4)*t) + (1/2 - 21) * \exp((-6 - 1)*t) + (1/2 + 21) * \exp((-6 + 1)*t)$

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7. (1 pt) Find the solution of

$$y'' + 2y' + y = 225 e^{4t}$$

with  $y(0) = 5$  and  $y'(0) = 6$ .

$y =$  \_\_\_\_\_

*Correct Answers:*

- $(9) * \exp((4) * t) + (-4) * \exp(-t) + (-34) * t * \exp(-t)$

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8. (1 pt) Find the solution of

$$y'' + 7y' = 882 \sin(7t) + 784 \cos(7t)$$

with  $y(0) = 6$  and  $y'(0) = 4$ .

$y =$  \_\_\_\_\_

*Correct Answers:*

- $(-17) * 1 * \cos(7 * t) + (-1) * 1 * \sin(7 * t) + (23/2 - 183/14) * \exp((-7/2 - 7/2) * t) + (23/2 + 183/14) * \exp((-7/2 + 7/2) * t)$

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9. (1 pt) Find a particular solution to

$$y'' + 9y = 30 \sin(3t).$$

$y_p =$  \_\_\_\_\_

*Correct Answers:*

- $-5 * t * \cos(3 * t) + a * \sin(3 * t) + b * \cos(3 * t)$

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