Show Appropriate Work

Name: Scaled to 10

1. Find the form of a particular solution suggested by the Method of Undetermined Coefficients.

$$y'' + 2y' + y = 3te^{2t} + 3t^{2}$$

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$$r^{2} + 2r + 1 = 0$$

$$(r + 1)^{2} = 0$$

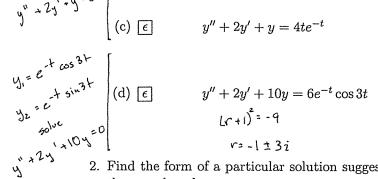
$$y'' + 2y' + y = 4t \sin t$$

$$y'' + 2y' + y = 4te^{-t}$$

$$(c) \quad \epsilon \quad y'' + 2y' + y = 4te^{-t}$$

(a)
$$\epsilon$$
 $y'' + 2y' + y = 3te^{2t} + 3t^2$

$$y'' + 2y' + y = 4te^{-t}$$



$$y'' + 2y' + 10y = 6e^{-t}\cos^{-t}$$

$$(r+1)^2 = -9$$

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2. Find the form of a particular solution suggested by the Method of Undetermined Coefficients in the complex plane.

$$y'' + 2y' + y = 4te^{it}$$

(b)
$$\epsilon$$
 $y'' + 2y' + 10y = 6e^{(-1+3i)t}$

On separate sheets of paper stapled to this page do the following.

3. Consider the equation

$$y'' + 2y' + y = 4t\sin t. \tag{1}$$

- (a) 1 Find the general solution to y'' + 2y' + y = 0.
- (b) 4 Use the Real Method of Undetermined Coefficients to find a particular solution to (1).
- (c) 4 Use the Complex Method of Undetermined Coefficients to find a particular solution to
- (d) 1 Find the general solution to (1).
- 4. Consider the equation

$$y'' + 2y' + 10y = 6e^{-t}\cos 3t. (2)$$

- (a) 1 Find the general solution to y'' + 2y' + 10y = 0.
- (b) 4 Use the Real Method of Undetermined Coefficients to find a particular solution to (2).
- (c) 4 Use the Complex Method of Undetermined Coefficients to find a particular solution to
- (d) [1] Find the general solution to (2).