



- 1 In the following problems, use the technique demonstrated in Example 5.6 to find a particular solution for the given differential equation.
 - a) $y'' + 6y' + 8y = -3e^{-t}$
 - b) $y'' + 3y' - 18y = 18e^{2t}$

- 2 In the following problems, use the form $y_p = a \cos \omega t + b \sin \omega t$, as in Example 5.8, to help find a particular solution for the given differential equation.
 - a) $y'' + 9y = \sin 2t$
 - b) $y'' + 7y' + 10y = -4 \sin 3t$

- 3 Use the complex method, as in Example 5.12, to find a particular solution for the differential equation $y'' + 9y = \sin 2t$

- 4 Use the technique of Section 4.3 to find a solution of the homogeneous equation $y'' + 2y' + 2y = 2 \cos 2t$; then use the technique of this section to find a particular solution. Use Theorem 5.2 to form the general solution. Then find the solution satisfying the initial conditions $y(0) = -2$, $y'(0) = 0$

- 5 For the following problems, find a particular solution to the given second-order differential equation.
 - a) $y'' - y = t + 3$
 - b) $x'' - 2x' - 3x = 4e^{3t}$