

HWS

SECTION 3.3

- ① Use Euler's formula to write e^{1+2i} in the form $a+ib$
- ② Find the general solution to
$$y'' - 2y' + 6y = 0$$
- ③ $y'' + 2y' + 2y = 0$, same question
- ④ Find the solution, sketch it, and find the asymptotic behavior, as $t \rightarrow \infty$:
$$y'' - 2y' + 5y = 0; y(\pi/2) = 0, y'(\pi/2) = 2$$
- ⑤ Solve $t^2 y'' + 4t y' + 2y = 0$

SECTION 3.4

- ⑥ Solve $9y'' + 6y' + y = 0$
- ⑦ Solve $4y'' + 12y' + 9y = 0$
- ⑧ Solve $9y'' - 12y' + 4y = 0; y(0) = 0, y'(0) = 2$

⑨ Find a second solution to

$$t^2 y'' - 4ty' + 6y = 0, t > 0$$

knowing the solution $y_1(t) = t^2$

SECTION 3.5

⑩ Find the general solution to

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

⑪ same for $y'' + 9y = t^2 e^{3t} + 6$

⑫ same for $u'' + \omega_0^2 u = \cos \omega_0 t$
 ω_0 is constant $\neq 0$, real.

⑬ The IVP $y'' + 4y = t^2 + 3e^t$; $y(0) = 0$, $y'(0) = 2$

⑭ Solve the IVP $y'' + 2y' + 5y = 4e^{-t} \cos 2t$; $y(0) = 1$, $y'(0) = 0$

⑮ Find a particular solution to

$$y'' + 2y' + 5y = 3t \cos 2t e^{-t} - 2t \cos t e^{-2t}$$