Goal and idea - Module 13

GOAL:

In the last module, we learned how to solve *homogeneous* linear differential equations with constant coefficients. We turn to finding solutions for such *nonhomogeneous* differential equations. However, we won't be able to solve all such equations. In this module, we

- recall nonhomogeneous linear differential equations with constant coefficients; and
- learn to solve such differential equations in the case the nonhomogeneous portion consists of
  - polynomials,
  - $\sin(x), \cos(x)$, and
  - terms of $x^k e^{mx}$.

IDEA:

We take the needed particular solution to be a linear combination of the terms above, plug into the differential equation, and find the appropriate constants.