Your Preferred Name

Student ID #

Consider the following initial value problem:

$$y'' - 8y' + 15y = 15^2 \cdot t = 225t, \qquad y(0) = 8, y'(0) = 17.$$

1. (**Do not solve the IVP yet.**) Which of the following techniques could be used to solve this IVP? For those that apply, fill in the blanks.
   - ◯ separable equation, with $f(y) =$ _____, $g(t) =$ _____
   - ◯ variation of parameters, with $y_1 =$ _____, $y_2 =$ _____
   - ◯ integrating factors, with $\mu(t) =$ _____
   - ◯ autonomous equation analysis, with $f(y) =$ _____
   - ◯ reduction of order, with $y_1 =$ _____
   - ◯ undetermined coefficients, with $Y =$ _____

2. Pick one of the above techniques and find the **general solution** of the above differential equation.

3. Solve the above initial value problem.