Group Practice

Find the general form of the solution to the corresponding differential equation:

1. $4y'' + 4y' + y = 0$

2. $y'' + 4y' + 13 = 0$

3. $y'' + y' - 2y = 0$

4. $y'' + 2y' + y = 0$

5. $3y'' + 2y' + y = 0$

Find the second solution using W

Use the Wronskian to find the second solution, given that

$$t^2 y'' - 4ty' + 6y = 0 \qquad y_1(t) = t^2$$

The idea is that we compute $W(y_1, y_2)(t)$ two ways (one way using the definition, the second using Abel's Theorem), then set them equal. This gives a differential equation for y_2 that we can solve.