

## Suggested problems 16

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1. Find the general solution of the given differential equations

(a)  $y'' - 2y' + 2y = 0$ ;

(b)  $y'' + 6y' + 13y = 0$ .

2. Find the solution of the given initial value problem

$$y'' + 4y' + 5y = 0, \quad y(0) = 1, \quad y'(0) = 0.$$

3. Given that  $y_1(t) = t^2$  is a solution of

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

find all solutions of the equation.

(Use the method of reduction of order!)

4. Given that  $y_1(x) = e^x$  is a solution of

$$(x - 1)y'' - xy' + y = 0, \quad x > 1$$

find all solutions of the equation.

(Use the method of reduction of order!)