

(1) Find the general solution to the following differential equations.

(a)  $y'' - 5y' + 6y = 0$

(b)  $y'' + y' - 20y = 0$

(c)  $y'' - 2y' = 0$

(d)  $y'' - 2y' - 4y = 0$

(e)  $y'' + 25y = 0$

(f)  $y'' + 2y = 0$

(g)  $y'' + 5y = 0$

(h)  $y'' + 2y' + 3y = 0$

(i)  $y'' + 6y' + 10y = 0$

(2) Solve  $y'' + y = 0$ ,  $y(0) = 1$ ,  $y'(0) = 3$ .