

### Exercise 30

Solve the telegraph equation in Exercise 29 with  $V(x, 0) = 0$  for

- (a) the Kelvin ideal cable line ( $L = 0 = G$ ) with the boundary data  
 $V(0, t) = V_0 = \text{const.}$ ,  $V(x, t) \rightarrow 0$  as  $x \rightarrow \infty$  for  $t > 0$ .
- (b) the noninductive leaky cable ( $L = 0$ ) with the boundary conditions  
 $V(0, t) = H(t)$  and  $V(x, t) \rightarrow 0$  as  $x \rightarrow \infty$  for  $t > 0$ .