



By KCL, for node x, R1 is originally  $6\ \Omega$ ,  
 we have  $\frac{v_x - V_1}{R_1} + \frac{v_x}{R_2} + \frac{v_x}{R_3} = 0$ ,  
 then  $v_x = 30.85\text{V}$ ,  $i_0 = \frac{v_x}{4} = 7.714\text{A}$ .  
 After switching,  $R_1 = 3\ \Omega$ , then  $v_x = 48\text{V}$ ,  $i(\infty) = 12\text{A}$ .  
 Hence,  $i_t = i(\infty) + (i(0) - i(\infty))e^{-\frac{t}{\tau}} = (12 - 4.286e^{-3t})\text{A}$ .  
 By PSpice simulation, we find that  $i(t)$  is identical to the equation.

Title			
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Date:	Monday, October 21, 2019	Sheet	1 of 1