

59. (a) Since  $R_{\text{tank}} = 140\ \Omega$ ,  $i = 12\text{ V}/(10\ \Omega + 140\ \Omega) = 8.0 \times 10^{-2}\text{ A}$ .  
(b) Now,  $R_{\text{tank}} = (140\ \Omega + 20\ \Omega)/2 = 80\ \Omega$ , so  $i = 12\text{ V}/(10\ \Omega + 80\ \Omega) = 0.13\text{ A}$ .  
(c) When full,  $R_{\text{tank}} = 20\ \Omega$  so  $i = 12\text{ V}/(10\ \Omega + 20\ \Omega) = 0.40\text{ A}$ .