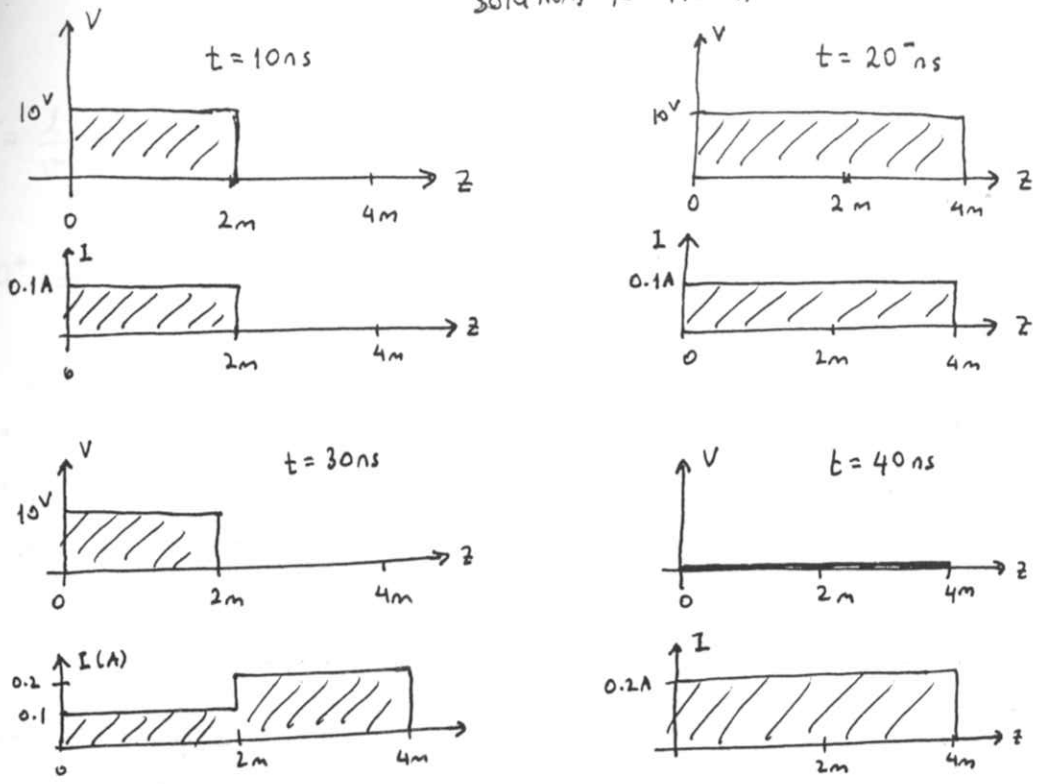
EEE 451/551

Solutions to HW #6

(1)



note that $\Gamma_L = -1$ for short cct.

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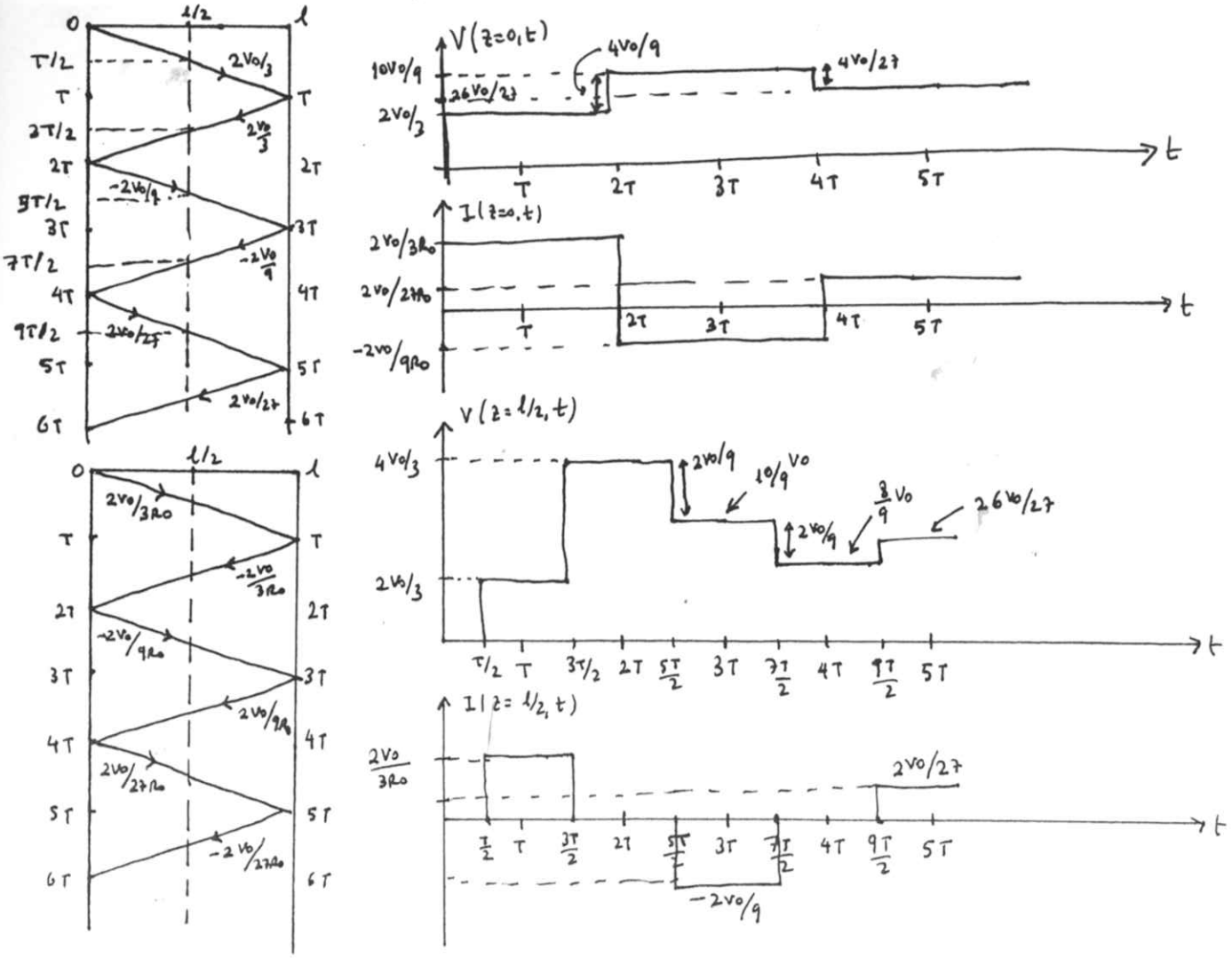
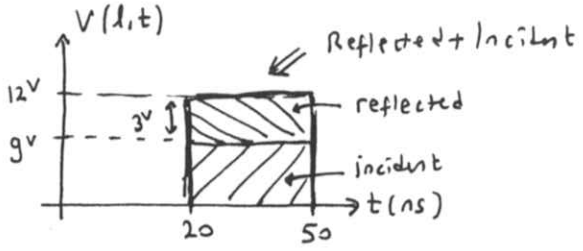
(2) $\Gamma_L = \frac{Z_L - Z_0}{Z_L + Z_0} = 1$, $\Gamma_g = \frac{Z_g - Z_0}{Z_g + Z_0} = -\frac{1}{3}$, $V_g = V_0 \Rightarrow V_0^+ = \frac{V_0 R_0}{R_0 + R_0/2} = \frac{2V_0}{3}$, $I_0^+ = \frac{2V_0}{3R_0}$

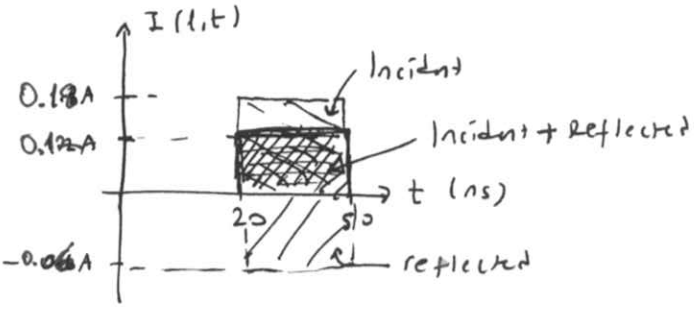


(3) $T = \frac{1}{v} = \frac{4\,m}{3\times10^8\,m/sec/\sqrt{2.25}} = 20\,nsec$, $\Gamma_g = \frac{z_g - z_0}{z_g + z_0} = 0$, $\Gamma_L = \frac{z_L - z_0}{z_L + z_0} = \frac{1}{3}$

$t = 0^+ \Rightarrow V_i = V_g \frac{z_g}{z_g + z_0} = 9^V$ & $V_r = V_i \Gamma_L = 3^V$; $I_i = \frac{V_g}{z_g + z_0} = 0.18\,A \Rightarrow I_r = -\Gamma_L I_i = -0.06\,A$

(a)





(b)