

Lesson 22: Exam 2 Review

Example Problem 1

Consider a linear machine with $B = 1 \text{ T}$, $l = 0.2 \text{ m}$, $V_A = 12 \text{ V}$ and $R_A = 0.05 \text{ } \Omega$.

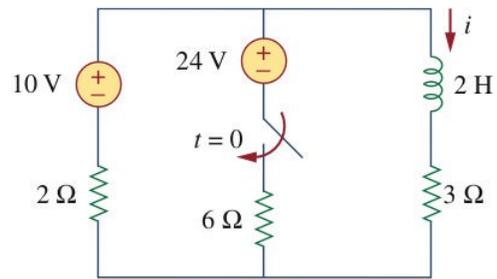
Compute I_A and the force exerted on the bar $t = 0$. Also compute steady-state speed (no load). If a load force of 4 N is applied, determine the new speed, the power supplied by V_A , power delivered to the load, power lost to heat and the efficiency.

Example Problem 2

A 24V DC motor is operated unloaded where the armature current is 2.3 A and speed is 1800 rpm. The load is increased until the armature current equals 20 A. In this loaded condition, the motor rotates at 1500 rpm. Find R_A and K_v , then determine T_{Loss} and T_{Load} .

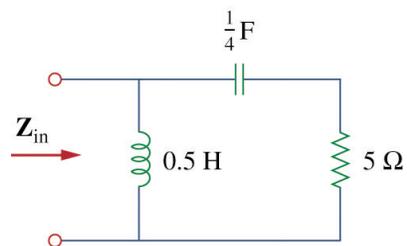
Example Problem 3

Find $i(t)$ for $t > 0$. Assume the switch has been closed for a long time.



Example Problem 4

Find the input impedance Z_{in} if $\omega = 10$ rad/s.



Example Problem 5

Determine the Thévenin equivalent as seen at terminals a - b .

