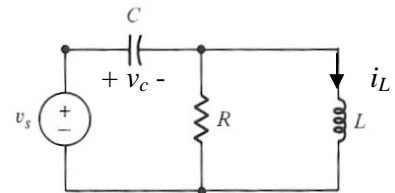


King Fahd University of Petroleum & Minerals
Electrical Engineering Department
EE205: Electric Circuits II (Dr. Ali Muqaibel)
In class group practice: Matrix State Equation

Name:

For the circuit shown $C=1\text{F}$, $R=1\Omega$, and $L=1\text{ H}$:

a) Write the matrix state equation.



b) Utilizing the result from (a), use numerical method to find approximate value for the current in the inductor at $t=0.002\text{s}$. Use $\Delta t=0.001\text{s}$ and assume $i_L(0) = 0.1\text{A}$, $v_c(0) = 10\text{V}$, and $v_s(0) = 20\text{V}$.