Chapter 7 Homework:

1. For the circuit below, determine
2. *vC(t), t>0*
3. *vC(t), t>0* if the capacitance is *1F*
4. *vC(t), t>0* if the capacitance is *0.25F*



1. Find *v(t), t>0*, in the circuit below.



1. For the circuit shown, the switch moves from position A to position B at time t = 0. Find *v(t), t>0.*



1. For the circuit shown, the input is the current source *u(t)=2u0(t)A* and the output is the voltage across the 6Ω resistor, *y(t).*  Find *y(t), t>0.*



1. For the circuit shown, the input is the current source *u(t)* and the output is the current through the inductor, *y(t).*
2. Determine the differential equation relating *u(t)* and *y(t).*
3. If *u(t) = 3u0(t)*, determine *y(t), t>0*.
4. Does your answer to part (b) agree with your expectations as to the circuit’s physical behavior as *t→∞*? Why or why not?



1. For the circuit shown, the switch closes at time *t = 0*.
2. Write the differential equation governing *i(t)*, *t>0*.
3. Determine initial (*t = 0*) and final (*t→∞*) conditions on the current *i(t)*. You may assume that no energy is stored in the inductor before *t=0*.
4. Find *i(t), t>0*.



1. For the circuit below, determine the differential equation relating *Vout(t)* and *Vin(t)*.



1. Determine the differential equations relating Vout and Vin for the circuit below.



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1. Determine the differential equations relating Vout and Vin for the circuit below.



1. Determine the differential equation relating *VIN(t)* and *VOUT(t)* for the circuit below.



1. Find *VOUT(t), t>0*, in the circuit below.



1. For the circuit below, determine
2. the differential equation governing  *VOUT(t), t>0*
3. *VOUT(t), t>0*.
4. Does your solution for part (b) agree with your expectations, based on the circuit’s behavior as *t→∞*?

