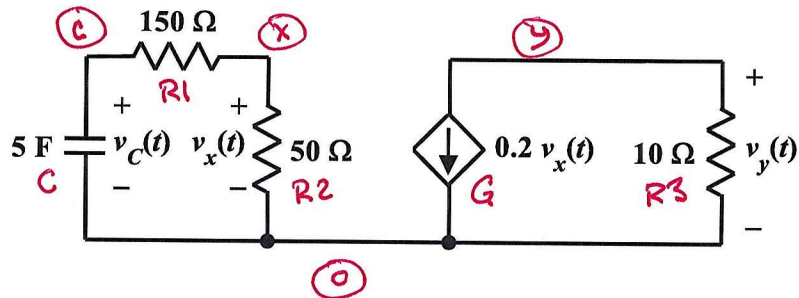


EE 2240  
Homework Problem #070



Given  $v_c(0) = 100 \text{ V}$ :

(a) Determine  $v_y(t)$  for  $t \geq 0$ .

$$\tau = (200 \Omega)(5 \text{ F}) = 1000 \text{ s}$$

$$v_c(t) = 100 e^{-t/1000} \text{ V}$$

$$v_x(t) = \frac{50}{200} v_c(t) = 25 e^{-t/1000} \text{ V}$$

$$v_y(t) = (-10 \Omega)(0.2)(25 e^{-t/1000})$$

$$= -50 e^{-t/1000} \text{ V}$$

(b) Use LTspice to verify your result. *Explain how you know they are the same.*

```

C c 0 5 IC=100
R1 c x 150
R2 x 0 50
G y 0 x 0 0.2
R3 y 0 10
.TRAN 1 5k 0 1 UIC
    
```

```
EE2240 Fall 2021 Homework Problem #070.cir
EE2240 Fall 2021 Homework Problem #070.cir
C c 0 5 IC=100
R1 c x 150
R2 x 0 50
G y 0 x 0 0.2
R3 y 0 10
.TRAN 1 5k 0 1 UIC
.END
```

