

# RC Circuits

Started: Jun 26 at 9:01pm

## Quiz Instructions

Please watch both of the youtube videos in the RC Circuit Modules and read the lab manual. Round your answers to the second decimal place.

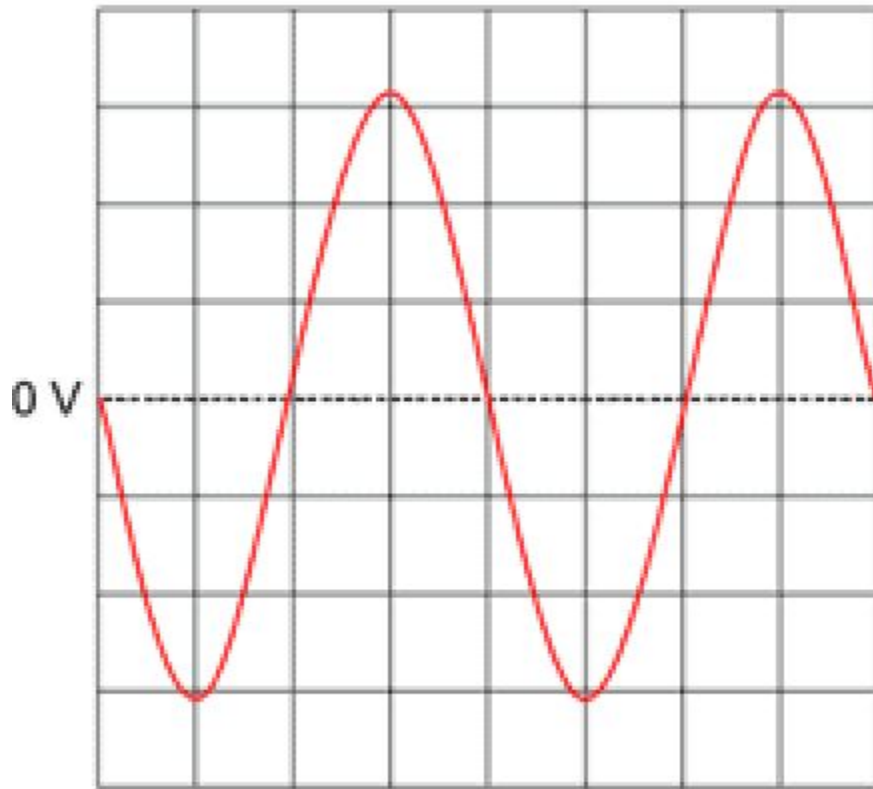
### Question 1

2 pts

A resistor and capacitor are connected in series in an RC circuit. The capacitor is initially charged at time  $t = 0$  and is allowed to discharge through the resistor. Calculate the time constant  $\tau$ , if the resistor has a resistance of  $10k\Omega$  and the capacitor has a capacitance of  $0.01 \mu F$ . Give your answer in  $\mu s$ .

### Question 2

3 pts



The peak to peak voltage of a time varying signal is measured from a maximum point to a minimum point. For the above oscilloscope read out for a sine wave, what is the peak to peak voltage (in Volts), given that the Volts per Division setting on the oscilloscope is 2 Volts. Give your answer in Volts.

**Question 3****3 pts**

Using the oscilloscope read out from the previous question, what is the period of the sine wave given that the Time per Division setting is 1 ms. Give your answer in milliseconds.

**Question 4****2 pts**

What is the significance of the time constant  $\tau$ ? What does it indicate about the charge on the capacitor? How can we change the time constant in an RC Circuit (essentially what does the value of the time constant depend on)?

[HTML Editor](#) 

**B** *I* U A ▼ A ▼ I<sub>x</sub>














 Font Sizes ▼ Paragraph ▼

If we add more resistance the capacitor will drain more slowly. If we lower the resistance the capacitor will drain faster.

In real world applications it is critical to drain capacitors in electronics because a technician working on an electric "appliance" can get electrocuted from stored charge in capacitors.

p



Quiz saved at 12:45am

Submit Quiz