

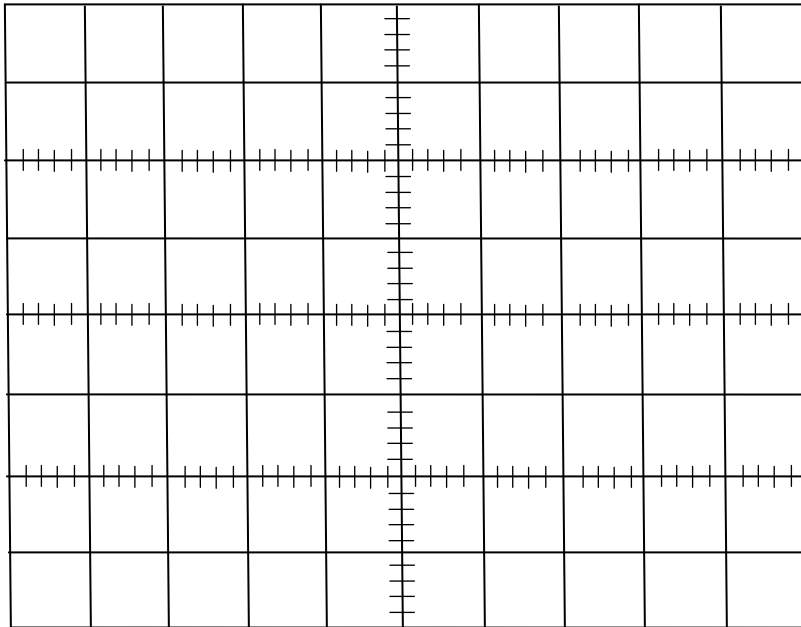
# PHY 122/124 EXPERIMENT 5 AC circuits - Worksheet

## The capacitor voltage $V_C(t)$ :

### Quantities/Settings for the measurement

	Capacitance	Resistance	Frequency	Volt/Div(CH1)	Volt/Div(CH2)	Time/Div
Unit						
Value						

**Sketch** your observed voltage traces for the RC circuit  $V_{AC}(t)$  and  $V_C(t)$  into the graph paper below. **Label the axes** including **units** and indicate which trace is which voltage. Further indicate the **range** in voltage and range in time you used for the calculation of the **time constant  $\tau_C$** .



The measured  $\tau_C$  including an estimate of the error is:

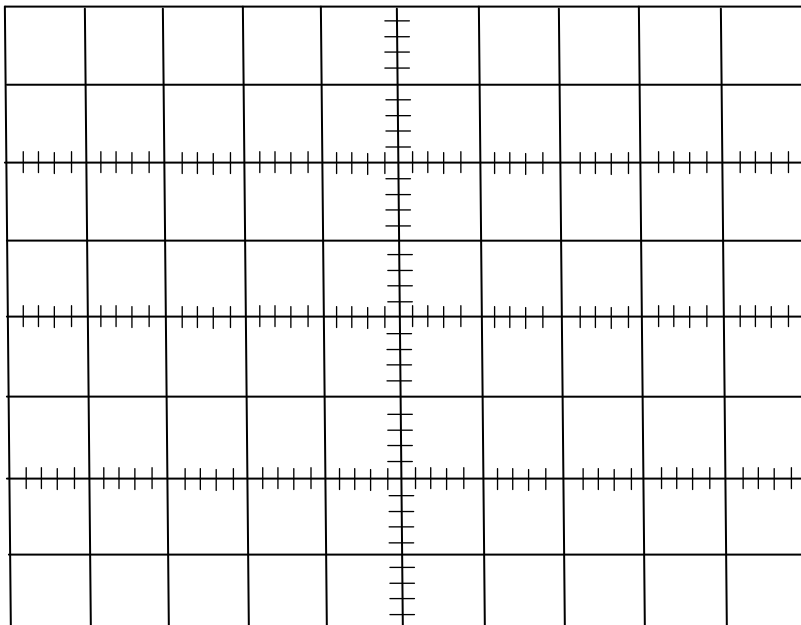
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**The resistor voltage  $V_R(t)$ :**

**Quantities/Settings for the measurement**

	Capacitance	Resistance	Frequency	Volt/Div(CH1)	Volt/Div(CH2)	Time/Div
Unit						
Value						

**Sketch** your observed voltage traces for the RC circuit  $V_{AC}(t)$  and  $V_R(t)$  into the graph paper below. **Label the axes** including **units** and indicate which trace is which voltage. Further indicate the **range** in voltage and range in time you used for the calculation of the **time constant  $\tau_C$** .



The measured  $\tau_C$  including an estimate of the error is:

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**Part II: Resonant AC Circuits:**

**Quantities/Settings for the measurement**

	Capacitance	Resistance	Inductance	Frequency	Volt/Div(CH1)	Time/Div
Unit						
Value						

Calculated value of resonance frequency from preparation assignment: \_\_\_\_\_ [      ]

First guess for resonance frequency as shown on frequency generator dial: \_\_\_\_\_ [      ]

First guess for resonance frequency (1/period) as measured on oscilloscope screen: \_\_\_\_\_ [      ]

The **ratio  $r$**  of the more accurate frequency measured with the oscilloscope over the nominal FREQUENCY setting of the generator is (**no error**)\_\_\_\_\_.

Enter the values for the **voltage  $V_R$  across the resistor** in Fig 6 and the **FREQUENCY settings** of the generator for the 10 steps into the table below:

step	FREQUENCY [      ]	Voltage $V_R$ [      ]
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		