

E6 Pre-Lab Quiz

Name: _____

1. Give the names of the following controls on the scope. Also, give the corresponding number from Fig. 1 in the lab manual.

Controls the intensity of the display: _____

Used to make the glowing lines sharp and clear: _____

Specifies the value of each division along the vertical scale on the screen: _____

Specifies the value of each division along the horizontal scale: _____

Moves the display pattern up or down on the screen: _____

Moves the display pattern left or right on the screen: _____

Determines which channel or channels appear on the screen: _____

2. The electrical power in a typical wall outlet is called “110 Volts AC”.

a. Write an expression for this voltage as a function of time.

b. What is the frequency, f , the angular frequency, ω , and the period of one cycle, T ?

3. “RMS” stands for “root mean square”, which is in turn shorthand for squaring a voltage, averaging over a period, and then taking the square root. The average of the function \sin^2 is $\frac{1}{2}$, so the rms voltage is $1/\sqrt{2}$ of the maximum voltage amplitude. The square wave is different. What is the RMS value of a square wave with amplitude V_o ?

4. For the experiment shown in Fig. 10, sketch what voltages you expect to see at $Y1$ and $Y2$ as a function of time. Plot them on the same Y vs t graph for a few sinusoidal cycles of the function generator.