

Math 119 – Chapter 10.5 (The Sine Function as a Function of Time)

The objective of this chapter is to graph the sine function in situations where voltage, current, radio signals, sound waves, and pressure are involved as a function of time.

Sketch two cycles of the graph that has the following information. Use your graphing calculator to verify your graph.

1. $a = 32.1\text{ mm}$, $\omega = 2.25\text{ rad / s}$

2. $a = 15.6\text{ ft}$, $f = 0.32\text{ Hz}$

3. $a = 8.32\text{ cm}, f = 17.6\text{ Hz}$

Sketch two cycles of the voltage as a function of time for an alternating current circuit in which the voltage e is given by $e = E \cos(\omega t + \alpha)$

4. $E = 160\text{ V}, f = 60\text{ Hz}, \alpha = \frac{\pi}{2}$