

## PROBLEM:

Define  $x(t)$  as

$$x(t) = 20 + 60 \cos((2\pi/15)t - 2\pi/3)$$

- What is the fundamental period  $T_0$  of  $x(t)$ ?
- What is the time shift  $t_m$  of  $x(t)$ ?
- Draw a detailed plot of  $x(t)$  over the domain  $|t| \leq \frac{3}{2}T_0$ . Label carefully and include the amplitude,  $t_m$ , and  $T_0$ .
- Define  $y(t) = x(t - t_0)$ . Find  $t_0$  so that the signal  $y(t)$  has its maximum value at  $t = 0$ . There are an infinite number of  $t_0$ s, so give the general form.