

2. [6 points] After escaping from a pirate ship and being stranded at sea for several days, mad scientist Kiki LeBlanc arrived at a desert island. On the island, the temperature is very predictable, and it can be modeled by a sinusoidal function which varies daily from a high of  $90^\circ\text{F}$  at 4pm to a low of  $64^\circ\text{F}$  at 4am. Find a formula for a sinusoidal function  $T(h)$  that gives the temperature in  $^\circ\text{F}$  on the island  $h$  hours after midnight on any given day.

$$T(h) = \underline{\hspace{10cm}}$$

3. [6 points] Kiki eats lots of papayas and coconuts on the island when she's hungry. When she eats  $w$  pounds of papayas, she stays full for  $P(w)$  hours. When she eats  $w$  pounds of coconuts, she stays full for  $C(w)$  hours. Give practical interpretations of the following expressions:

- $C^{-1}(3) = 2$ .

- $P^{-1}(C(4))$