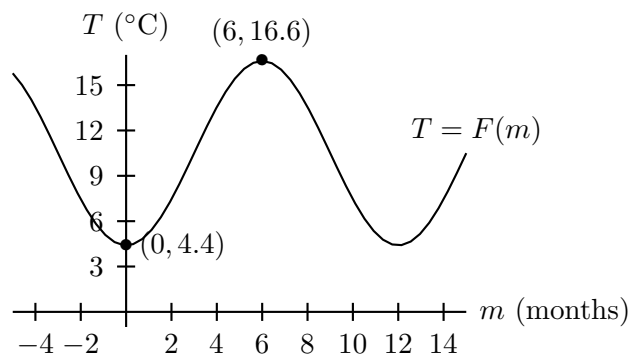


4. [12 points]

a. [7 points]

The average temperature, T , in degrees Celsius, for the city of Forks, Washington, can be modeled by the sinusoidal function $F(m)$, where m is measured in months after January 1 (so $m = 0$ represents January 1). A portion of the graph of $T = F(m)$ is shown on the right.



Find the period, amplitude, midline, and a formula for the sinusoidal function $F(m)$ shown above. (Include units for the period and amplitude.)

Period: _____

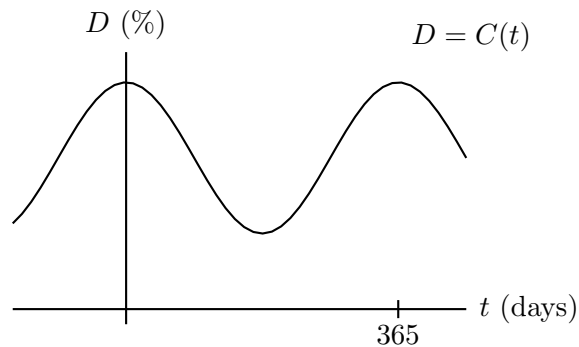
Amplitude: _____

Midline: _____

Formula: $F(m) =$ _____

b. [5 points]

Suppose the chance of significant cloud cover in Seattle on day t of the year is $D\%$. D can be approximated by the function $C(t) = 23 \cos(0.0172t) + 53$. A portion of the graph of $D = C(t)$ is shown to the right. A family in Forks wants to visit Seattle when the chance of significant cloud cover is at least 60%. Find ALL solutions to the equation $C(t) = 60$ for $0 \leq t \leq 365$.



For full credit, you should solve this problem algebraically and show each step clearly. Your answer(s) should either be in exact form or be accurate to at least 2 decimal places.

Answer(s): _____