2. Suppose $A(t)$ is a function that gives the average high temperature (in ^oF) in Ann Arbor as a function of t measured in months where $t = 0$ represents January (the coldest month in Ann Arbor).

   (a) (2 points) Puerto Montt, a city in Chile, is approximately the same distance from the equator as Ann Arbor, but it is in the southern hemisphere where the warmest month is January. Let $P(t)$ be a function that gives the average high temperature in ^oF in Puerto Montt as a function of time, t, in months. Write $P(t)$ in terms of $A(t)$.

   $P(t) = A(t-6)$ or, (equally acceptable) $P(t) = A(t+6)$

   (b) (2 points) The average high temperatures in Montreal are approximately 10^oF less than the average highs in Ann Arbor. If $M(t)$ is a function that gives the average high temperature in Montreal as a function of time, t in months, express $M(t)$ in terms of $A(t)$.

   $M(t) = A(t) - 10$

   (c) (5 points) The average high temperature in Ann Arbor ranges from a low of 30^oF in January to a high of 84^oF in July. Use this information to write $A(t)$ as trigonometric function.

   $A(t) = -27\cos(\frac{\pi}{6}t) + 57$

   (d) (1 point) What is the amplitude of the function found in (c)? 27

   (2 points) What is the period of the function found in (c)? 12 months