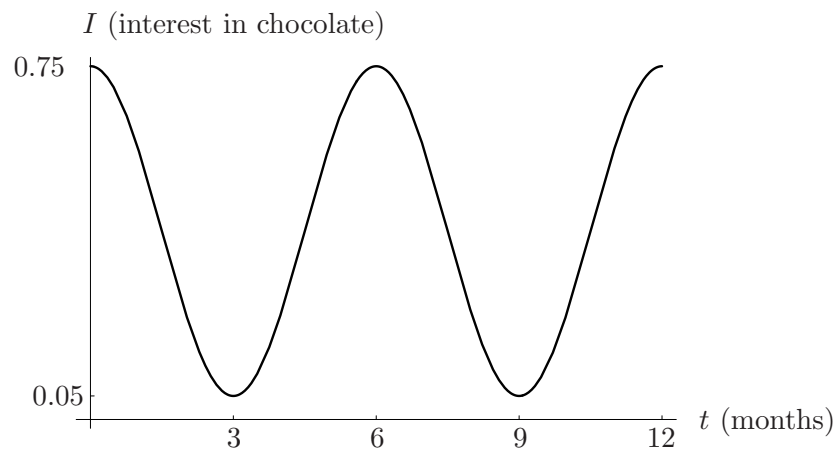


7. (14 points) Kevin's interest in chocolate fluctuates during the year. His girlfriend works at a chocolate factory, and sometimes he gets a chocolate overload. Even at the best of times, he wouldn't gauge his level of "chocolate interest" as more than, say, a 75% interest. Assume that Kevin's interest in chocolate is given by the graph of $I(t)$ shown below, where t is in months and $t = 0$ is January 1st, 2004.



(a) Assuming I is a trigonometric function, find a formula for I in terms of t .

(b) List all months of 2004 in which Kevin's interest in chocolate was increasing.

(c) For what value(s) of t during 2004 was Kevin's interest in chocolate increasing the fastest?