Worksheet # 6
Friday, April 10, 2020

Name

Questions (5 pts):

As we discussed, the probability of the \( i \rightarrow f \) transition under the sinusoidal perturbation \( V_0 \sin \omega t \) acting during the time \( t \) is given by:

\[
P_{if} = \frac{|V_0|^2}{4\hbar^2} \frac{\sin^2(\omega_f t/2)}{(\omega_f/2)^2}.
\]

1) Sketch \( P_{if} \) as a function of \( \omega \) at a fixed \( t \).

2) What is the amplitude of this function and what is the distance between the first zeros?

3) At what frequencies \( \omega \) does the transition \( i \rightarrow f \) with specified \( \omega_f \) occur?