Damped Oscillator II

d) It can be shown that in the limit of small damping (ie, $\eta \ll \omega_\circ$) the phase angle, ϕ, approaches $\pi/2$. In this limit the velocity is in phase with the forcing function, $F(t)$. Calculate as a function of time the power, $P(t)$, being supplied to the oscillator by the forcing function. Express your answer in terms of v_{max}, the maximum instantaneous speed of the oscillator.

$$P(t) =$$

e) What is the average power (over time), $\bar{P}(t)$, being supplied to the oscillator? (Hint: Sketch $P(t)$ and use your physical intuition.)

$$\bar{P}(t) =$$