Problem 11

A spring is stretched 6 in by a mass that weighs 8 lb. The mass is attached to a dashpot mechanism that has a damping constant of 0.25 $\text{lb} \cdot \text{s/ft}$ and is acted on by an external force of $4 \cos 2t$ lb.

(a) Determine the steady state response of this system.

(b) If the given mass is replaced by a mass m, determine the value of m for which the amplitude of the steady state response is maximum.