Problem 12

A spring-mass system has a spring constant of 3 N/m. A mass of 2 kg is attached to the spring, and the motion takes place in a viscous fluid that offers a resistance numerically equal to the magnitude of the instantaneous velocity. If the system is driven by an external force of $(3\cos 3t - 2\sin 3t)$ N, determine the steady state response. Express your answer in the form $R\cos(\omega t - \delta)$.