1. Rewrite $-2\cos(3t) - 3\sin(3t)$ in the form $R\cos(\omega_0 t - \delta)$.

2. [3.7.13] A certain vibrating system satisfies the equation $u'' + \gamma u' + u = 0$. Find the value of the damping coefficient γ for which the quasi period of the damped motion is 50% greater than the period of the corresponding undamped motion.

3. [3.7.9] A mass of 20 g stretches a spring 5 cm. Suppose that the mass is also attached to a viscus damper with a damping constant of 400 dyn·s/cm. (Note: 1dyn = 1g cm/s^2). If the mass is pulled down an additional 2 cm and then released, (a) find its position u as a function of time t. (b) Determine the quasi-frequency and quasi-period. (c) Determine the ratio of the quasi-period to the period of corresponding undamped motion.