Tutorial 10

Consider a negative feedback system consisting of a plant $G(s)$ and a feedback sensor$H(s)$, such that

$$G(s) = \frac{1}{s^2 + 4s + 3} \qquad H(s) = s^2 - 2s + 2$$

a) Design a P-controller so that the closed-loop system operate at $-1 + j1.29$.
b) Replace the P-controller with a PD-controller so that the settling time is $1/3$ of that of the uncompensated system without changing the peak time. Find the zero and the gain of the compensator.
c) Determine the values of the proportional and derivative gains of the PD-controller.