

**Assigned:** Wed. Feb. 20, 2002

**Due:** Wed. Feb. 27, 2002

**Reading:** 4.4

**Problem 1:** Palm 2.24

**Problem 2:** Palm 2.22

**Problem 3:** Palm 2.15

**Problem 4:** Palm 4.29

**Problem 5:** The rack and pinion system derived (and solved) in Example 4.3-3 of Palm is a second-order system. Assume that the current values of system parameters are such that the system is under-damped. It is proposed that the gear radius,  $R$ , be reduced by 10%. will the undamped natural frequency increase or decrease? Show why.

**Problem 6:** Palm 1.21

**Problem 7:** Palm 1.22