Consider two periodic tasks τ_1 and τ_2, with respective priorities P_1, P_2, periods T_1, T_2, and execution times C_1, C_2, such that $P_1 > P_2$ and $T_1 < T_2$. Assuming that these tasks fully use the processor, and that they both start their execution at t = 0, it is known that one has

$$C_2 = T_2 - C_1 \lceil \frac{T_2}{T_1} \rceil \text{ if } \tau_1 \text{ is inactive at } t = T_2$$

$$C_2 = (T_1 - C_1) \lfloor \frac{T_2}{T_1} \rfloor$$

What is the value of C_1 (as a function of T_1 and T_2) that leads to the smallest processor load factor? Is the processor load factor continuous as a function of C_1?

- In which case is there the maximum delay between a request for a task and the end of its corresponding execution (for a given set of tasks and priorities)? Prove it.
- Show that if a set of tasks is schedulable given some priority assignment, it is also schedulable with respect to the RMS policy. Show that the converse is false.
- True or false (if true, give a proof; if false, give a counter example): A set of tasks that fully uses the processor is such that its processor load factor is equal to 1.