prompt

The attached file has an assignment problem I gave in a previous semester. I want to you create a different problem with similar learning outcomes. Generate the output in a latex format which I can copy-paste into a latex editor.

Given a simplified model of an aircraft's altitude control system depicted in a schematic diagram, where u represents the input (throttle setting) and the output of interest is h (altitude).

The dynamic behavior of the system is captured by a differential equation governing its motion.

Tasks for the problem:

1. Compute the transfer function object of the system using the `tf()` function and store it in a variable named `AltitudeTF`.
2. Compute the impulse response over a duration of 200 seconds and store the resulting output in a variable called `yImpulse`.
3. Compute the step response over a duration of 200 seconds and store the resulting output in a variable called `yStep`.

The parameters for the system and time duration have been predefined for you. Please maintain these values as given.

Assume the system starts from rest (zero initial conditions).