Analysis Of Quick Return Mechanism Using Vector Analysis

Problem Statement

Find the Output torque of the quick return mechanism for one full cycle of motion . Given Data

- Length Of each Link in meters.
- Mass of each link in Kg.
- Mass of the piston in Kg.
- Angular velocity of the driver link.

Control Buttons

"RUN" button starts the animation.
"STOP" button stops the animation.
"RESET" button resets the animation.

Procedure

Set all the input parametrs using sliders. Press reset button
and then start button to start the animation.

Concepts used

Displacement, velocity, and acceleration analysis using complex number method.
Total acceleration at any point on the link.
Acceleration difference.
Inertia forces due to acceleration of each link.

What to see

Various graphs are plotted.

Graph of the angle of oscillating link vs. angle of the driver link
Graph of the angle of link connected to the piston vs. angle of the driver link
Graph of the avelocity of the piston vs. angle of the driver link
Graph of the acceleration of the piston vs. angle of the driver link
Graph of the output torque vs. angle of the driver link