Angular Impulse and Angular Momentum Change

Answer the following questions as a group. Make your answers brief (one or two sentences) but clear.

Relating Angular Impulse to Change in Angular Momentum

For the mass **falling**, what direction is the y-component of the angular impulse *due only to friction*?

For the mass **rising**, what direction is the y-component of the angular impulse *due only to friction*?

How does the **magnitude** of the angular impulse *due only to friction* compare for the mass rising and for the mass falling?

For a given Δt, the **average** of $|\Delta L_{\text{falling}}|$ and $|\Delta L_{\text{rising}}|$ should be equal to which of the following? (*Note: The order of these options may be different in the WebAssign question.*)

- $(|\tau_{\text{mass}}| + |\tau_{\text{friction}}|) \cdot \Delta t$
- $(|\tau_{\text{mass}}| - |\tau_{\text{friction}}|) \cdot \Delta t$
- $|\tau_{\text{friction}}| \cdot \Delta t$
- $|\tau_{\text{mass}}| \cdot \Delta t$

Explain briefly.

Determine an Unknown Moment of Inertia

Explain briefly how you determined the moment of inertia of the combined object (disk + rectangle).

Explain briefly how you determined the moment of inertia of the rectangle alone.

Excel® Spreadsheet

Turn in the Excel® spreadsheet containing your data, calculations, and graphs here. The file name must end in ".xls". (Submit a file with a maximum size of 1 MB. *You will upload this file in the WebAssign question.*)

Angular Momentum Graphs

Before turning in your pictures (graphs), make sure that they are in **.jpg format**! (Submit files with a maximum size of 1 MB each. *You will upload these files in the WebAssign question.*)

- Graph from "Relating Angular Impulse $\vec{\tau}\Delta t$ to Change in Angular Momentum"
- Graph from "Determine an Unknown Moment of Inertia"