This problem follows the garden hose problem linked on the schedule.

Clarification:
- Hose starts out full of stationary water.

Conservation of Mass:
\[
0 = \sum \int_{S_{CV}} \rho V_x \, dA
\]

Fixed mass:
\[
0 = -pVA + \frac{pVA}{in\, 1} - \frac{pV(t)A + pV(t)A}{out\, 2}
\]

\[
7.26 \text{ ft}
\]

\[
F = 0.017 \text{ lbf}
\]
\( u(r) = -U_{\text{max}} \left[ 1 - \left( \frac{r}{R} \right)^2 \right] \)

"COMPLETE" LINEAR MOMENTUM PROBLEM
analyze takeoff

\[ \sum F_x - \int_{A} \sigma_{xx} \, dA = \int_{A_{xy}} \sigma_{xy} \, dA + \int_{A_{xy}} \sigma_{xy} v \cdot d\vec{A} \]

\[ \sum F_z + \sum F_B \]

\(-F_{\text{wheel}} - F_{\text{wind}} \quad M_{\text{plane a plane}} = \text{loose cargo term} + \text{in } \Omega \]

on to CO \(< \text{MOM} \ldots \)

First consider torque on this object (see prob 2 hwk 6 spr 08)

using your intuition, then compare

\( \ldots \to \text{eq 4.46 Fox & McDonald} \)