Water enters a cylindrical tank with diameter, D, through two pipes at volumetric flow rates of  $Q_1$  and  $Q_2$  and leaves through a pipe with area,  $A_3$ , with an average velocity,  $\overline{V}_3$ . The level in the tank, h, does <u>not</u> remain constant. Determine the time rate of change of the level in the tank.

