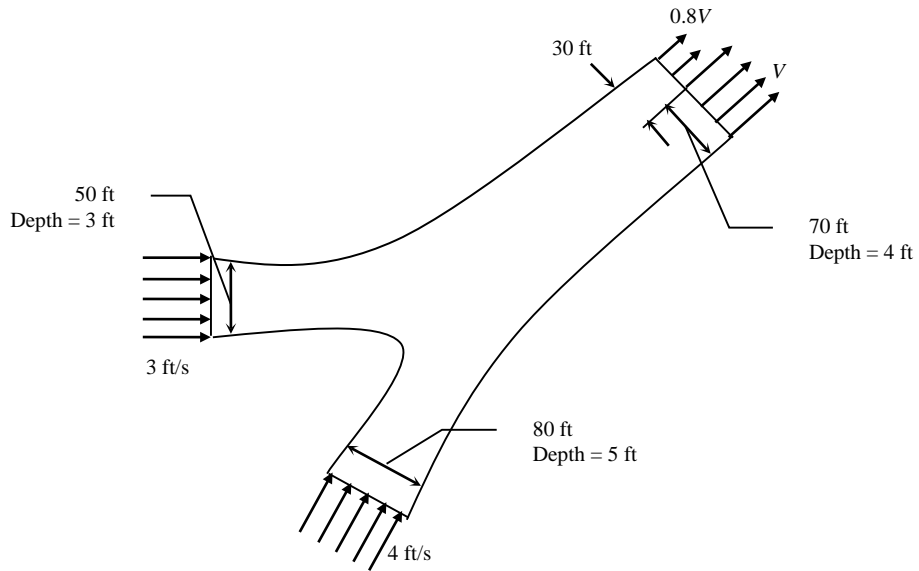

Example

Two rivers merge to form one river ("And sorry I could not travel both...") as shown. At a location downstream from the junction, the velocity profile is as shown in the figure. Determine the value of V .



Example

Liquid mercury ($\rho = 13,500 \text{ kg/m}^3$) enters a diverging channel as shown below. It enters the channel with a one-dimensional velocity profile and exits with the profile shown in the figure. The flow is steady, and the channel has a constant width (into the page) of w . Other known information is shown.

- (a) Find the mass flow rate of the mercury at the channel exit in kg/s.
- (b) Find the average velocity at the inlet of the channel in m/s.

