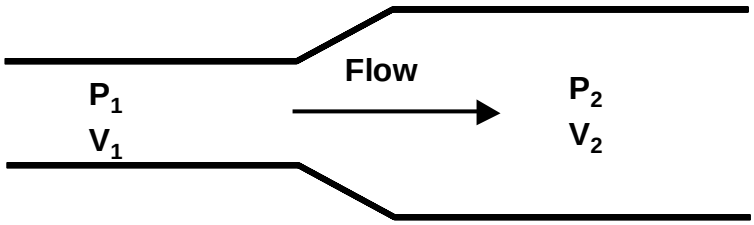
17. Water flows through a pipe and enters a section where the cross sectional area is larger. Viscosity, friction, and gravitational effects are negligible. Circle the letter of the correct statement about the change in pressure p and average velocity V.

A P_2 is less than P_1 and V_2 is less than V_1

B P_2 is less than P_1 and V_2 is greater than V_1

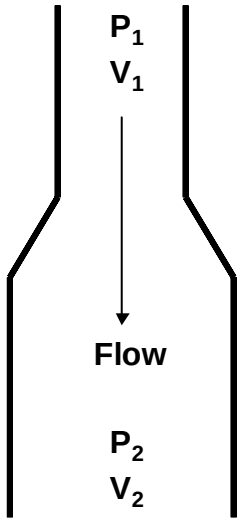
C P_2 is greater than P_1 and V_2 is less than V_1

D P_2 is greater than P_1 and V_2 is greater than V_1



23. Water flows vertically down through a pipe and enters a section where the cross sectional area is larger. Viscosity and pipe friction effects are negligible but gravitational effects are not negligible. Circle the letter of the correct statement about the pressure P_2 and velocity V_2.

A. P_2 equals P_1 and V_2 equals V_1
B. P_2 is greater than P_1 and the V_2 is greater than V_1
C. P_2 is greater than P_1 and the V_2 is less than V_1
D. P_2 is less than P_1 and the V_2 is greater than V_1
E. P_2 is less than P_1 and the V_2 is less than V_1



10. Pitot tubes are placed in two ducts in which air flows as shown below. The density and temperature of the flows are equal. The dynamic (velocity) pressure and the static pressure taps are connected to two manometers. The pressure difference for duct A is 2" of water and that for Duct B is 4" of water. Circle the correct answer for the velocity V_A in duct A relative to the velocity V_B in duct B.

A. V_B equals 2 V_A
B. V_B equals $\sqrt{2}$ V_A
C. V_B equals V_A
D. V_B equals $V_A / \sqrt{2}$
E. V_B equals V_A /2