1.) A liquid flows through a pipe with a diameter of 10cm at a velocity of 9cm/s. If the diameter of the pipe then decreases to 6cm, what is the new velocity of the liquid?

2.) Which will produce the greatest increase in flow velocity through a tube?

A) Halving the tube radius

B) Doubling the viscosity of the liquid

C) Doubling the tube area

D) Dividing the tube area by three

E) Doubling the tube radius

3.) If a pipe with flowing water has a cross-sectional area nine times greater at point 2 than at point 1, what would be the relation of flow speed at the two points?

A) The flow speed relation will depend on the viscosity of the water

B) The flow speed at point 1 is three times that at point 2

C) The flow speed at point 1 is nine times that at point 2

D) The flow speed at point 2 is nine times that at point 1

E) The flow speed at point 2 is three times that at point 1

4.) As water is traveling from a water tower, to somone's home, the pipes it travels in frequently change size.

Water is traveling at 5m/s in a tube with a diameter of 0.5m. The tube gradually increases in size to a diameter of 1.5m, and then gradually decreases to a diameter of 1m. Neglecting any energy losses due to friction and pressure changes, what is the speed of the water when it reaches the tube diameter of 1m?

5.)

Example

A pipe of internal diameter 10mm is connected to a pipe of internal diameter 5mm. If the fluid speed entering the larger diameter pipe is 1 m s^{-1}, what is the speed of the fluid as it flows through the smaller pipe?
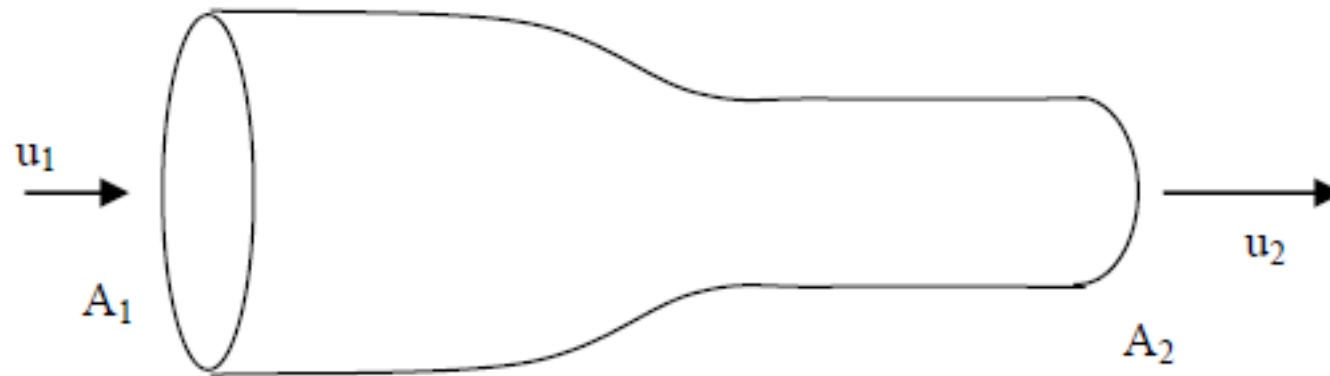
6.)

Continuity in pipe networks

Flow in = flow out.

Flow in (1) 10mm ID, 0.1 m s^{-1}.

Flow out (2) 5mm ID, 0.05 m s^{-1}.

Flow out (3) 7mm ID, what is u$_3$?