

1. Water enters a horizontal pipe of non-uniform cross-section with a velocity of 0.6m/s and leaves the other end with a velocity of 0.4m/s . At the first end, pressure of water is 1600N/m^2 . Calculate the pressure of water at the other end. Density of water = 1000 kg/m^3 ?
2. Calculate the minimum pressure required to force the blood from the heart to the top of the head (vertical distance 0.5m). Assume the density of blood to be 1040kg/m^3 . Friction is to be neglected ?
3. "A common misconception is that the wind 'blows the roof off' from the outside. Using Bernoulli's equation, explain why it is more accurate to say the roof is 'pushed off' from the inside."
4. What's the difference between flow rate and velocity?
5. What is the difference between a streamline and a pathline
6. Discuss the Limitations of Bernoulli's Theorem
7. How does the shape of an airplane wing generate lift, and does the same principle apply to birds? Provide a step-by-step explanation based on air movement, speed differences, and pressure changes above and below the wing.
8. How do atomizers in everyday devices like perfume bottles and medical inhalers demonstrate Bernoulli's principle? Explain how forcing air through a narrow nozzle increases its velocity, lowers the pressure above the liquid tube, draws the liquid upward, and breaks it into a fine mist of tiny droplets.