Assignment 3

The task is to quantify the assignment outcomes. All questions are closed book/untimed assignments.

1. In a circular tube of radius r if carrying a laminar flow, the ratio of average velocity to the maximum velocity in the context is __________
   - Answer: No homework is required.

2. In a circular tube of radius r if carrying a turbulent flow, the ratio of average velocity to the maximum velocity in the context is __________
   - Answer: No homework is required.

3. The creeping motion shows Stokes law to up to a critical Reynolds number of value __________
   - Answer: No homework is required.

4. In laminar flow between two flat parallel plates, the shear stress is maximum at __________
   - a. Boundary  b. Centre  c. Although the passage  d. All of these
   - Answer: No homework is required.

5. According to Plateau's work length theory, the turbulent shear stress is equal to __________
   - Answer: No homework is required.

6. Water of kinematic viscosity 1 centistokes flows through a 10 mm diameter pipe. The critical turbulent flow in this pipe would correspond to a Reynolds number of approximately __________
   - Answer: No homework is required.

7. The velocity field of a fluid of density ρ is given by \( V = x + y + z \). In the turbulent shear stress is __________
   - Answer: No homework is required.

8. In a laminar flow through a circular pipe of diameter 20 cm, the maximum velocity is found to be 0.5 m/s. If the velocity is 0.7 m/s at a radial distance of 5 cm from the axis of the pipe.
   - Answer: No homework is required.

9. When water passes through a given pipe at mean velocity V, the flow is found to change from laminar to turbulent regime. It reaches a fluid of specific gravity ρ and coefficient of dynamic viscosity μ. If that water is passed through the same pipe, the transition to turbulent flow is expected at a velocity of __________
   - Answer: No homework is required.

10. If the maximum velocity in a laminar flow through two parallel plate static is 3 m/s, then the average velocity is __________
    - Answer: No homework is required.

11. The distance from where the center of the pipe at which the local velocity is equal to the average velocity, for turbulent flow is given to __________
    - Answer: No homework is required.

12. In a turbulent flow pipe flow the boundary is hydrodynamically smooth __________
    - Answer: No homework is required.