

Fluids HW - Continuity Equation

⚠ This is a preview of the draft version of the quiz

Started: Nov 4 at 9:26am

Quiz Instructions

Question 1

1 pts

Which of the following is NOT a requirement for the continuity equation to be true?

- The fluid must move at a constant speed.
- The fluid must be incompressible.
- The flow must be laminar.
- The fluid must have a low viscosity.

Question 2

1 pts

At point 1, fluid is moving through a tube with a cross-sectional area A_1 .

At point 2, the tube has a cross-sectional area A_2 that is half of A_1 .

How does the fluid velocity V_1 compare to the fluid velocity V_2 ?

- At point 2, the fluid moves twice as fast as it moves at point 1.
- At point 1, the fluid moves twice as fast as it moves at point 2.
- At point 1, The fluid moves four times as fast as it moves at point 2.
- At point 2, The fluid moves four times as fast as it moves at point 1.
- The fluids move at the same velocity at both points.

Question 3**1 pts**

An olympic swimming pool is 50m long, 25m wide, and 2m deep. Ten drains 45cm in diameter are installed in the bottom of the pool to pump water into a filtering system. These drains have guards on top - to prevent objects (and people) from getting sucked in - which restrict the flow area by 50%. We wish to filter the entire volume of the swimming pool every 30minutes. How fast does water flow through the drains m/s?

Question 4**1 pts**

An olympic swimming pool is 50m long, 25m wide, and 2m deep. Ten drains 45cm in diameter are installed in the bottom of the pool to pump water into a filtering system. These drains have guards on top - to prevent objects (and

people) from getting sucked in - which restrict the flow area by 50%

Assuming that the pump can provide the same flow rate, what effect would you expect if 2 of the drains in the pool became clogged so that no water could flow through them?

- the water would flow faster through the drains
- it would take twice as long to filter the pool
- there would be no change
- the water would flow slower through the drains

Not saved

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