Unit 03: Finite and Differential Control Volume Analysis

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Table of Contents

4. Chapter: Unit 03: Finite and Differential Control Volume Analysis

1. Unit 03: Finite and Differential Control Volume Analysis Questions

4.1.1. A hydroelectric dam on the Ochlockonee River was built in 1929. The...

Author: Stephanie Redfern

A hydroelectric dam on the Ochlockonee River was built in 1929. The elevation change in water level from above the dam to below the dam is about 10 m. The hydroelectric plant on the dam is capable of producing as much as 12 MW of electrical power. Which of the following is the best estimate of the flow rate of water through the dam at peak generation rate?

Please choose only one answer:

- 100,000 m^3/s
- 10,000 m^3/s
- 1000 m^3/s
- 100 m^3/s
- 10 m^3/s

4.1.2. Consider a garden hose (3/4 inch internal diameter) through wh...

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Consider a garden hose (3/4 inch internal diameter) through which water is flowing at a rate of 1 gallon/minute. At the end of the hose is a 1/8" diameter nozzle. Which of the following most closely matches the magnitude of the rate of change in momentum of the water through the nozzle?

Please choose only one answer:

- 0.5 N
- 9 N
- 8.5 N
- 9.5 N

4.1.3. Consider a cylindrical tank 1 m in diameter and 10 m high. The...

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Consider a cylindrical tank 1 m in diameter and 10 m high. The tank is being filled with a liquid at a rate of 10 gallons/min. Which of the following best represents the rate of change of fluid level (or height) in the tank?

Please choose all the answers that apply:

- 1 m/hr
- 2.9 m/hr
- 0.05 m/hr
- 0.08 m/hr

Author: Stephanie Redfern

Consider a tank 1 m in diameter and 10 m high. The tank is being filled with a liquid at a rate of 10 gallons/min. The liquid drains from the tank at a rate Q = f h, where h is the height of liquid in the tank, and f is 1 gal/(min m). Which of the following best represents how long it takes to fill the tank to a height of 5 m?

Please choose only one answer:

- 1.44 hours
- 172 minutes
- 144 minutes
- 1.72 hours

Check the answer of this question online at QuizOver.com:
Question: Consider a tank 1 m in diameter and 10 m Stephanie Redfern @The Fluid

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