

Physics 2205
Quiz 10—Form A

4 November, 1999

1. If 3 cm of oil ($\rho=500 \text{ kg/m}^3$) is poured into 1 side of a U tube containing water ($\rho=1000 \text{ kg/m}^3$), how far above the boundary between the two fluids will the water level be on the other side?

- A) 0 cm
- B) 1.5 cm
- C) 3.0 cm
- D) 4.5 cm

2. A guitar string of length 0.70 m and linear mass density $\mu=0.0020 \text{ kg/m}$ is tightened to a tension of 500 N. What is the fundamental wavelength of vibration?

- A) 0.70 m
- B) 1.4 m
- C) 360 m
- D) 500 m

Some equations: $A_1 v_1 = A_2 v_2 = \Delta V / \Delta t$ $v = (F_T / \mu)^{1/2}$
 $P = F / A$ $\lambda_n = 2L / n$
 $g = 9.8 \text{ m/s}^2$ $\Delta P = \rho g h$ $v = \lambda f$

Physics 2205
Quiz 10—Form B

4 November, 1999

1. If 3 cm of oil ($\rho=500 \text{ kg/m}^3$) is poured into 1 side of a U tube containing water ($\rho=1000 \text{ kg/m}^3$), how far above the boundary between the two fluids will the water level be on the other side?

- A) 0 cm
- B) 1.5 cm
- C) 3.0 cm
- D) 4.5 cm

2. Air blows through a duct of cross-sectional area 0.25 m^2 with a velocity of 1.6 m/s . How much time will it take to replace the air in a room with a volume of 105 m^3 ?

- A) $3.8 \times 10^{-3} \text{ s}$
- B) 3.8 s
- C) 42 s
- D) 260 s

Some equations: $A_1 v_1 = A_2 v_2 = \Delta V / \Delta t$ $v = (F_T / \mu)^{1/2}$
 $P = F / A$ $\lambda_n = 2L / n$
 $g = 9.8 \text{ m/s}^2$ $\Delta P = \rho g h$ $v = \lambda f$