# Fluid Mechanics Unit 07: Compressible Flow

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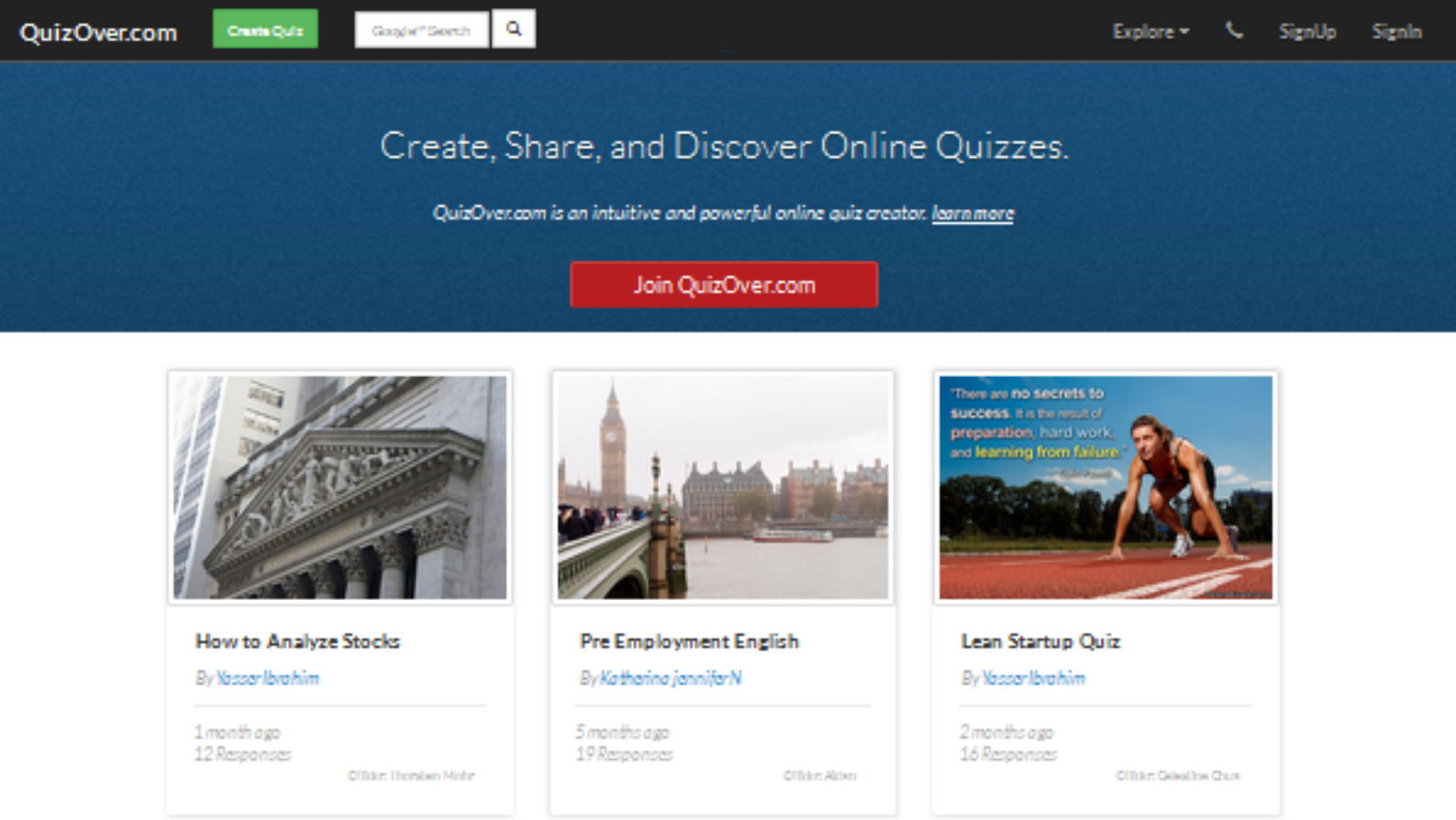


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Stephanie Redfern and Tuan Dinh. Fluid Mechanics. The Saylor Foundation, http://www.saylor.org/courses/me201/

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# 4. Chapter: Unit 07: Compressible Flow

## 1. Unit 07: Compressible Flow Questions

# 4.1.1. Which of the following represents a compressible-flow version of Be...

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Which of the following represents a compressible-flow version of Bernoulli's equation?

Please choose only one answer:

- $$ \int_{p_0}^{p} \, 1/\rho \, dP + 1/2 \, v^2 + \rho g = constant$$
- $$ \int_{p_0}^{p} \, 1/\rho \, dP + {{1}\over{2}} \, \rho v^2 + \rho gh = constant$$
- $$ \int_{p_0}^{p} \, 1/\rho \, dP + {{1}\over{2}} \, v^2 + h g = constant$$
- $$ \int_{p_0}^{p} \, 1/\rho \, dP + {{1}\over{2}} \, v^2 + \rho g h = constant$$

# 4.1.2. Which of the following is the best explanation for why rocket engin...

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Which of the following is the best explanation for why rocket engine nozzles are made of convergent-divergent sections? I. Flow does become supersonic in a purely convergent flow. II. The divergent section is important for controlling thrust direction. III. The combination reduces resonant disturbances to the mechanical structure of the nozzle. IV.. The symmetry of the device aids in analysis and manufacture.

Please choose only one answer:

- I and II only
- I and III only
- I only
- I, II, III, and IV
- III and IV only

# 4.1.3. The 747 airliner is capable of approximately Mach 0.9 at altitude. ...

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The 747 airliner is capable of approximately Mach 0.9 at altitude. The claimed air speed is about 590 mph. What is the temperature of air used in that calculation?

Please choose only one answer:

- 100 °C
- 60 °C
- 20 °C
- 0 °C