Thermal-Fluid Unit 02: Measurement of Flow

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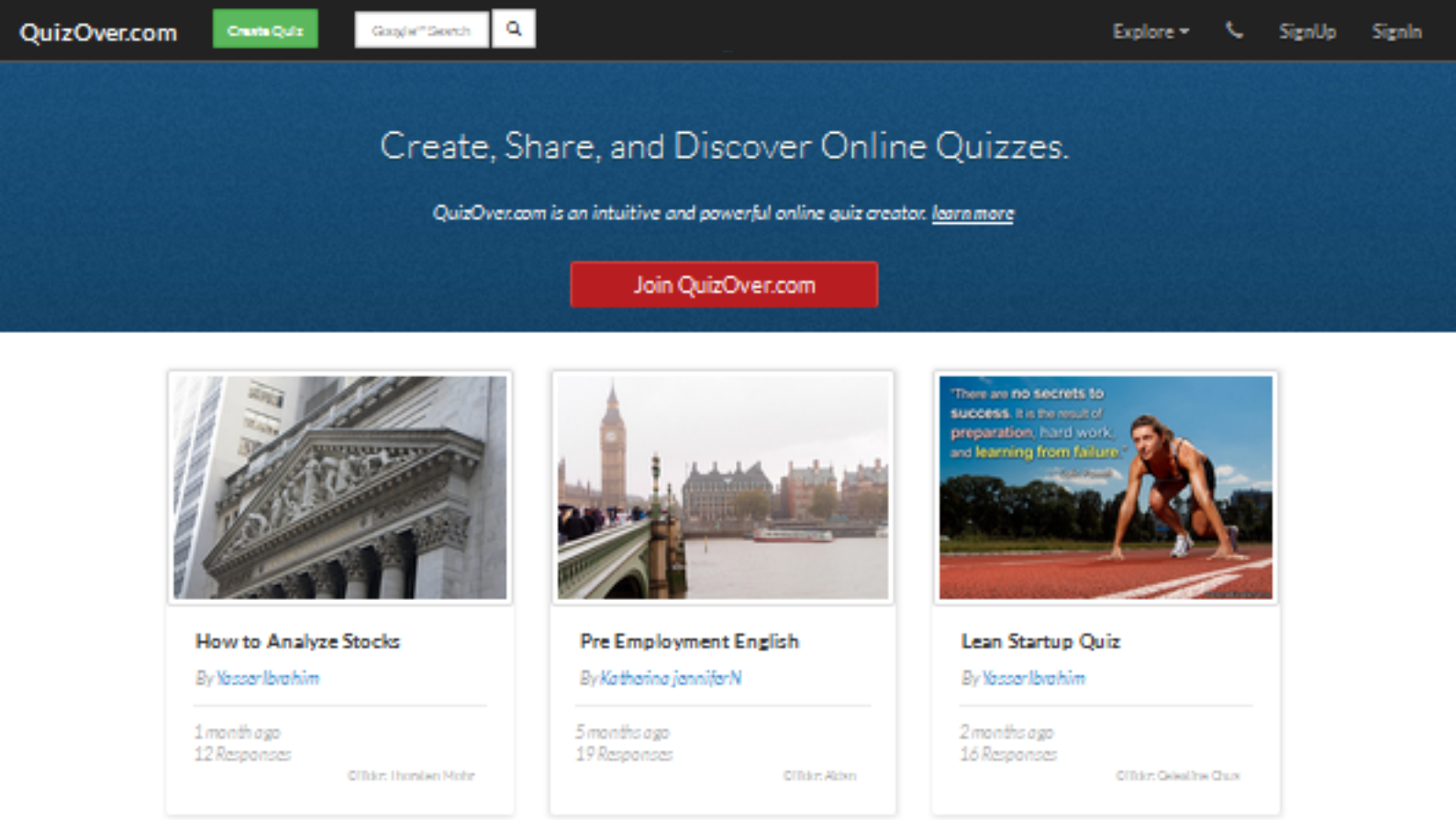

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4. Chapter: Unit 02: Measurement of Flow

1. Unit 02: Measurement of Flow Questions

4.1.1. Bernoulli's equation describes the conservation of energy under the...

Author: Steve Gibbs

Bernoulli's equation describes the conservation of energy under the restrictions of all of the following EXCEPT:

Please choose only one answer:

- Incompressible flow
- Inviscid flow.
- Steady flow
- Laminar flow.

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4.1.2. An incompressible fluid with density 0.55 kg/m[sup]3[/sup] flows th...

Author: Steve Gibbs

An incompressible fluid with density 0.55 kg/m[sup]3[/sup] flows through a contraction in a pipe from an ID of 0.5 in to an ID of 0.4 in at a flow rate of 0.0005 m[sup]3[/sup]/s. Calculate the pressure change over the contraction according to Bernoulli's equation.

Please choose only one answer:

- 61.3 Pa
- 122 Pa
- 1116 Pa
- 6130 Pa
- 613 Pa

4.1.3. A fluid with a density 7 times that of water is used in a manometer...

Author: Steve Gibbs

A fluid with a density 7 times that of water is used in a manometer. A manometer reading of what height of this fluid corresponds to a pressure difference of 12.7 psi?

Please choose only one answer:

- 12. 7 m
- 12. 7 cm
- 1.27 m
- 7.0 m
- 17.1 m

4.1.4. Air is flowing through a pipe with an internal diameter of 12 cm. I...

Author: Steve Gibbs

Air is flowing through a pipe with an internal diameter of 12 cm. It passes through an orifice of diameter 5 cm. The air density at the operating conditions is about 1.3 kg/m[sup]3[/sup]. The observed pressure difference across the orifice is approximately 100 mm Hg, and the flow coefficient for the orifice is approximately 0.7. What is the mass flow rate of air in m[sup]3[/sup]/s?

Please choose only one answer:

- $$2.0 m^3/s$$
- $$0.2 m^3/s$$
- $$0.4 m^3/s$$
- $$0.002 m^3/s$$
- $$4.0 m^3/s$$

4.1.5. A sharp-crested, rectangular weir of length 18 ft and height of 1 f...

Author: Steve Gibbs

A sharp-crested, rectangular weir of length 18 ft and height of 1 ft exhibits a head of 3 inches of water. Calculate the water flow in ft[sup]3[/sup]/s and assume that the head of velocity approach is small.

Please choose only one answer:

- 0.75 ft3/s
- 0.75 ft3/min
- 7.5 m3/hr
- 0.075 ft3/s
- 0.75 gal/min