

## **Mix and Flow of Matter**

### **Topic 6 - Buoyancy Practice Quiz**

1. Your friends collected rocks from a lake to get exercise. They noticed that the rocks weren't as heavy while they carried them partially submerged in the water. This is because of the ...
  - A. mass of the rock
  - B. density of the water
  - C. buoyant force of the water
  - D. buoyant force of the rock
  
2. Which of the following pools would give the most buoyancy?
  - A. Banff Hot Springs pool at 40°C
  - B. Southland Leisure Centre Hot Tub at 40°C
  - C. Fairmount Hot Springs pool at 35°C
  - D. West Edmonton Mall Wave pool at 35°C
  
3. Large ocean liners, like the Titanic, can float on the water because ...
  - its average density is lower than saltwater
  - the metal it was made of is less dense than water
  - the metal is more dense and therefore can float
  - saltwater is more dense and can hold up steel
  
4. Archimedes principle states that '*the buoyant force acting on an object equals ...*

**the mass of the fluid displaced by the object**

**the force that holds the object afloat**

**the weight of the object displaced by the fluid**

**the weight of the fluid displaced by the object**

5. Archimedes formulated his principle as a result of a very simple test about sinking and floating. He stepped into the bath and he sank, but when he stepped into the boat, on the water, he floated in the boat. The reason for this was because the buoyant force was ...

**less in the water**

**less in the boat**

**greater in the water**

**greater in the boat**

6. Density and buoyant force are related. As the ...
- A. density of a fluid increases, the buoyant force decreases**
  - B. density of a fluid decreases, the buoyant force increases**
  - C. density of a fluid increases, the buoyant force remains the same**
  - D. density of a fluid decreases, the buoyant force decreases**

**Check Answers**

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### Topic 6 - Buoyancy Practice Quiz

1. Your friends collected rocks from a lake to get exercise. They noticed that the rocks weren't as heavy while they carried them partially submerged in the water. This is because of the ...
  - x **A. mass of the rock**
  - x **B. density of the water**
  - C. buoyant force of the water (Text p. 59) Buoyant force is the upward force exerted by the liquid on objects submerged in the liquid**
  - x **D. buoyant force of the rock**
2. Which of the following pools would give the most buoyancy?
  - x **A. Banff Hot Springs pool at 40°C**
  - x **B. Southland Leisure Centre Hot Tub at 40°C**
  - C. Fairmount Hot Springs pool at 35°C To determine that this is the most dense you should know that a hot springs has sulfur in the water, which makes it more dense than the city swimming pools and the lower temperature makes it more dense than Banff.**
  - x **D. West Edmonton Mall Wave pool at 35°C**
3. Large ocean liners, like the Titanic, can float on the water because ...
  - its average density is lower than saltwater (Text p. 62) Average density is the total mass of the hull of the ship divided by its volume and with all that air it is less dense than water, so it will float - The reason it sank, was because water replaced the air in the hull and the ship became more dense.**
  - x **the metal it was made of is less dense than water**
  - x **the metal is more dense and therefore can float**
  - x **saltwater is more dense and can hold up steel**
4. Archimedes principle states that '*the buoyant force acting on an object equals ...*'
  - x **the mass of the fluid displaced by the object**
  - x **the force that holds the object afloat**
  - x **the weight of the object displaced by the fluid**
  - the weight of the fluid displaced by the object (Text p. 65)**

5. Archimedes formulated his principle as a result of a very simple test about sinking and floating. He stepped into the bath and he sank, but when he stepped into the boat, on the water, he floated in the boat. The reason for this was because the buoyant force was ...

x **less in the water**

x **less in the boat**

**greater in the water**

x **greater in the boat**

6. Density and buoyant force are related. As the ...

x **density of a fluid increases, the buoyant force decreases**

x **density of a fluid decreases, the buoyant force increases**

x **density of a fluid increases, the buoyant force remains the same**

**density of a fluid decreases, the buoyant force decreases (Text p. 67) As density decreases, so does buoyant force - just as density increases, so does buoyant force**