

PhyzJob: Rollin' on a River



HUCK'S NEW RIVER RIDE

A wood raft floats in the river. The raft has a volume of 0.58 m^3 and is made of wood having a density of 580 kg/m^3 . The deck has an area of 7.6 m^2 . (The raft is a rectangular solid with a base whose area is 7.6 m^2 as well.)

1. What is the weight of the raft?
2. What will be the buoyant force on the *floating* raft?
3. What weight of water must be displaced by the raft if it is to float in the water?
4. What volume of water would that be?
5. How deep must the raft sink into the water so that the raft will displace that volume of water?

When Huck and Jim step on board, the raft sinks an additional 0.02 m .

6. What is the combined mass of the passengers?
7. How much *more* of a mass can the raft carry before water washes over the deck?

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