

Next-Time Question

CONCEPTUAL Physics



Suppose you and a pair of life preservers are floating down a swift river, as shown. You wish to get to either of the life preservers for safety. One is 3 meters downstream from you and the other is 3 meters upstream from you. Which can you swim to in the shortest time?

- a) The preserver upstream.
- b) The preserver downstream.
- c) Both require the same time.



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Answer: c, both require the same time

To get a grip on this, pretend that you are in a swimming pool on a fast-moving ocean liner. If both life preservers are the same distance from you in the pool, swimming toward either would take the same time. The speed of the ocean liner through the water makes no difference, just as it makes no difference to people playing shuffleboard or billiards. Can you see that in the flowing river, you're like a person in a pool aboard a moving ocean liner—swimming toward either preserver takes the same time?

If you draw a box around the portion of interest, it will help you think of it as a moving swimming pool. Choosing a simple frame of reference can greatly simplify a problem!



Hewitt
Drew it!

