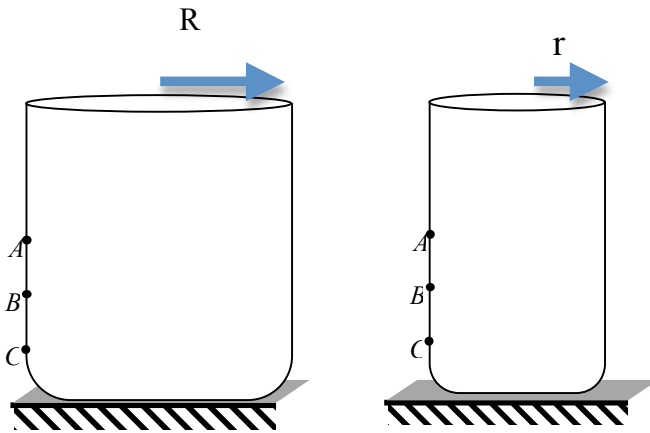


**I. Wendy and Doug**

Consider the regular and the wider containers from the tutorial. Recall Wendy's and Doug's argument about how far the water would squirt out from the wider container versus the thinner container for a hole at the same level.

Wendy: "The water above the hole pushes down on the water next to the hole, pressing it out. The strength of the squirting is determined by the weight of the water above the hole. There's more water above point A for this container, so the water will squirt out of that hole more strongly than it did with the other containers."

Doug: "I think the strength of the squirting is determined by the depth of the hole. The depth of point A is the same as for the other containers, so the water will squirt out the same."

- A. For the containers in the tutorial, the wider container was roughly twice as wide as the other one, that is,  $R = 2r$ . For simplicity, let us just consider the hole marked A and follow the implications of Wendy's argument. Using Wendy's idea, how far would you predict the wider container would squirt water compared to the regular container? (We are not looking for an exact numerical value such as, "the wider container would squirt water to a distance of 10 cm" but more like a comparison such as, "The wider container would squirt out 3 times as far as the regular one").
- B. Explain how you got to your estimate in part A using Wendy's reasoning. [Quantifying the qualitative reasoning is an important part of doing physics.] (continue on next page, if needed)

C. Now tell us what you saw in the experiment when you (or your TA) did it in class. Did the experiment support your numerical estimate of how far the wider container squirts relative to the regular one; or did the experiment support Doug's argument?

D. Now resolve the issue:

If you think that the experiment supported the numerical prediction from Wendy's argument, then how would you respond to Doug- What is missing in Doug's argument, or where is he going wrong?

If you think that the experiment supported the numerical prediction from Doug's argument, then how would you respond to Wendy- What is missing in Wendy's argument, or where is she going wrong?

(A response should directly address the reasoning of the person; for example, the arguments that are quoted are not 'responses' – Doug's dialog on the depth of hole is an alternate argument, not a response to Wendy's argument about the weight of water on top. We want you to **respond** to either Doug or Wendy depending on your answer in C)