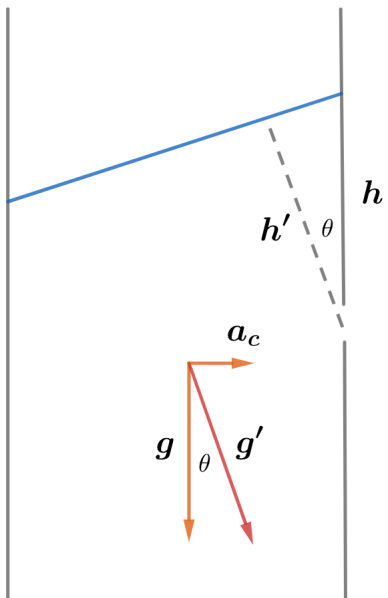


2019A F=ma Exam: Problem 25

Kevin S. Huang



In the noninertial frame of the beaker, we can include the contribution from the centrifugal force into effective gravity g' that points at an angle θ from the vertical. We have from similar triangles,

$$\frac{g}{g'} = \frac{h'}{h}$$

Applying Torricelli's law, we find that the speed of the water leaving the hole (passenger's perspective) is

$$v = \sqrt{2g'h'} = \sqrt{2gh}$$

so the answer is A.