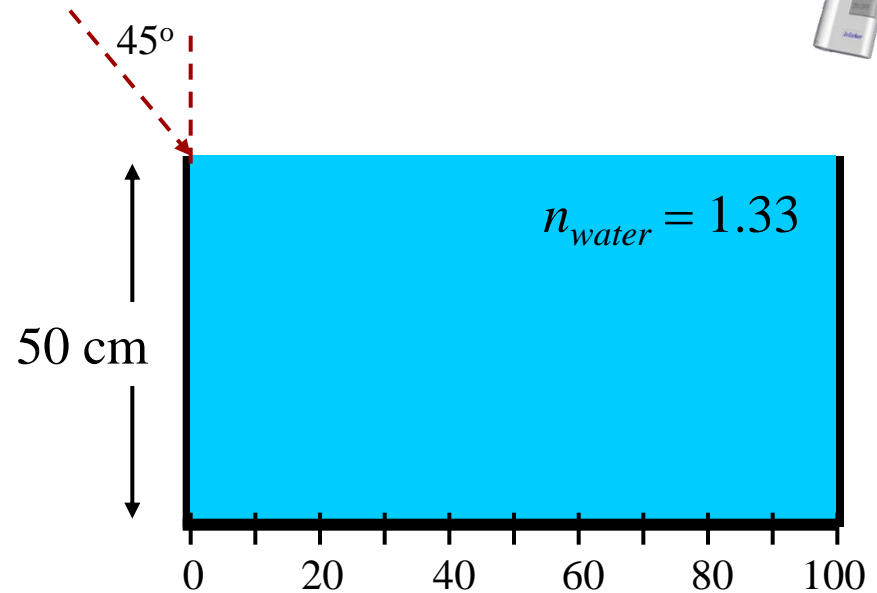


Exercise



A meter stick lies at the bottom of a rectangular water tank of height 50cm. You look into the tank at an angle of 45° relative to vertical along a line that skims the top edge of the tank.

What is the smallest number on the ruler that you can see?



If you shine a laser into the tank at an angle of 45° , what is the refracted angle θ_R in the water ?

A) $\theta_R = 28.3^\circ$

B) $\theta_R = 32.1^\circ$

C) $\theta_R = 38.7^\circ$

Snell's Law: $n_{air} \sin(45) = n_{water} \sin(\theta_R)$

→ $\sin(\theta_R) = n_{air} \sin(45) / n_{water} = 0.532$

→ $\theta_R = \sin^{-1}(0.532) = 32.1^\circ$