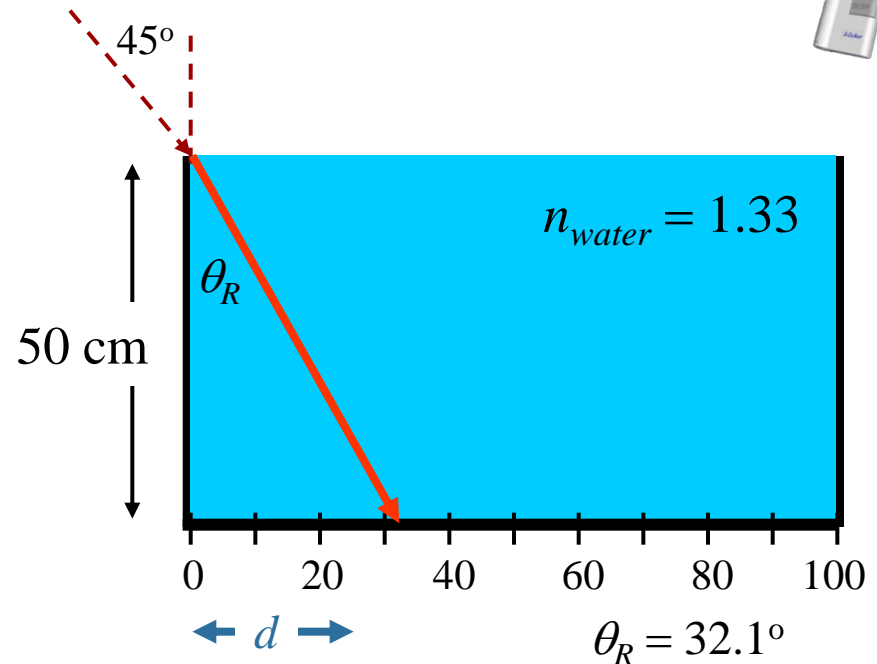# *Exercise*

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?

45°

$n_{water} = 1.33$

θ_R

50 cm

0   20   40   60   80   100

$\leftarrow d \rightarrow$

$\theta_R = 32.1°$

What number on the ruler does the laser beam hit?

A) 31.4 cm   B) 37.6 cm   C) 44.1 cm

$\tan(\theta_R) = d/50$

$\longrightarrow$ $d = \tan(32.1) \times 50\text{cm} = 31.4\text{cm}$