

## Answer on Question #46351, Physics, Other

### Question:

The critical angle for total internal reflection at an air - water interface is approximately  $48^\circ$ . In which of the following situations will total internal reflection occur.

- a. light incident in water at  $40^\circ$
- b. light incident in water at  $55^\circ$
- c. light incident in air at  $40^\circ$
- d. light incident in air at  $55^\circ$

### Answer:

Total internal reflection only takes place when both of the following two conditions are met:

- 1) a light ray is in the more dense medium and approaching the less dense medium (therefore it is possible only then light incident from water on air)
- 2) the angle of incidence for the light ray is greater than the critical angle (in this case  $48^\circ$ ).

Therefore total internal reflection will occur if light incident from water on air at  $55^\circ$  (answer d)