



Problem:

A body of density D is dropped from rest from a height h into a lake of density d . Neglecting all dissipative forces, the maximum depth to which the body sinks before returning to float on surface is:?

Solution:

Assume the volume of body is V . Then according to the law of conservation of energy, we have:

$$DVg(H + h) = dgVH$$

(all the potential energy of the body was used to overcome the buoyancy force dgV). Thus

$$H = \frac{Dh}{d - D}$$