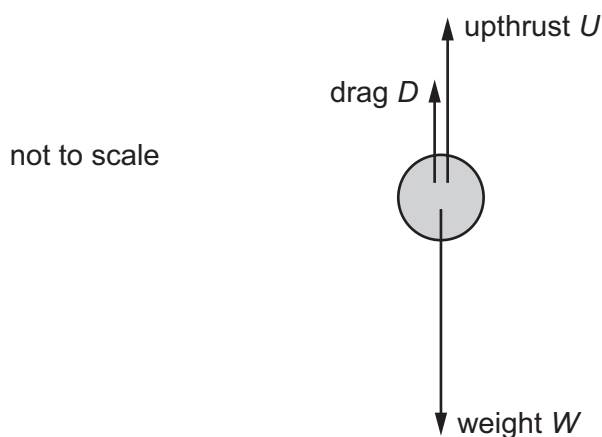13 A solid sphere falls at constant (terminal) velocity in a liquid. The three forces acting on the sphere are shown in the diagram.

not to scale

How are the three forces related?

A $W + D = U$

B $W > U + D$

C $W - U = D$

D $W < D + U$

14 A thin horizontal plate of area $0.036\,m^2$ is beneath the surface of a liquid of density $930\,kg\,m^{-3}$. The force on one side of the plate due to the pressure of the liquid is 290 N.

What is the depth of the plate beneath the surface of the liquid?

A   0.88 m   **B**   1.1 m   **C**   1.8 m   **D**   8.7 m

15 A ball is thrown vertically upwards. Air resistance is negligible.

Which statement is correct?

A   By the principle of conservation of energy, the total energy of the ball is constant throughout its motion.

B   By the principle of conservation of momentum, the momentum of the ball is constant throughout its motion.

C   The kinetic energy of the ball is greatest at the greatest height attained.

D   The potential energy of the ball increases at a constant rate during its ascent.