14 A cylindrical block of wood has cross-sectional area A and weight W. It is totally immersed in water with its axis vertical. The block experiences pressures p_t and p_b at its top and bottom surfaces respectively.

Which expression is equal to the upthrust on the block?

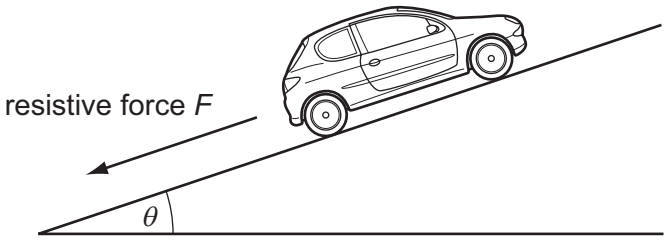
A $(p_b - p_t)A + W$

B $(p_b - p_t)$

C $(p_b - p_t)A$

D $(p_b - p_t)A - W$

15 A car of mass m travels at constant speed up a slope at an angle θ to the horizontal, as shown in the diagram. Air resistance and friction provide a resistive force F.



What force is needed to propel the car at this constant speed?

A $mg \cos \theta$

B $mg \sin \theta$

C $mg \cos \theta + F$

D $mg \sin \theta + F$

Space for working