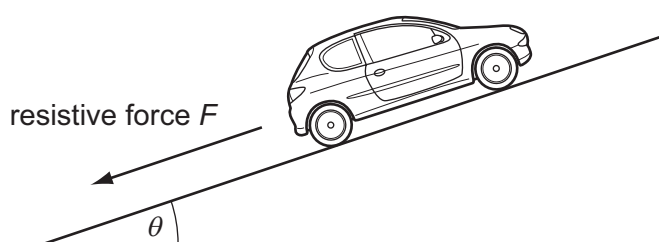


- 13** A cylindrical block of wood has cross-sectional area  $A$  and weight  $W$ . It is totally immersed in water with its axis vertical. The block experiences pressures  $p_t$  and  $p_b$  at its top and bottom surfaces respectively.

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**  $(p_b - p_t)A - W$

- 14** A car of mass  $m$  travels at constant speed up a slope at an angle  $\theta$  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**