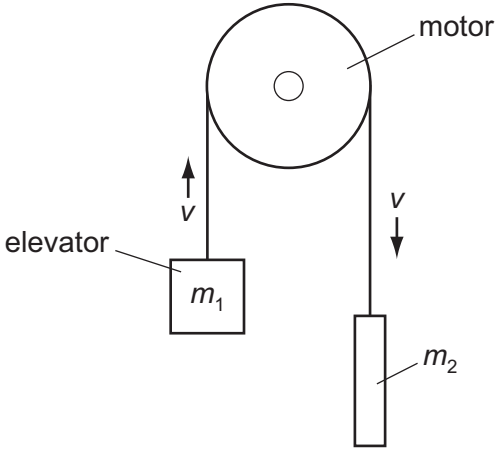
18 The diagram shows a lift system in which the elevator (mass m_1) is partly counterbalanced by a heavy weight (mass m_2).



At what rate does the motor provide energy to the system when the elevator is rising at a steady speed v? (g = acceleration of free fall)

A $\frac{1}{2} m_1 v^2$

B $\frac{1}{2} (m_1 - m_2) v^2$

C $m_1 g v$

D $(m_1 - m_2) g v$