

- 17** A student attempts to derive the formula for kinetic energy E_K . She begins by considering an object of mass m that is initially at rest. A constant force F applied to the object causes it to accelerate to final velocity v in displacement s . The kinetic energy gained by the object is equal to the work done on the object by the force F .

Which equation does the student **not** need in order to derive the formula for E_K ?

A $F = ma$

B $W = Fs$

C $E = \frac{1}{2}Fs$

D $v^2 = u^2 + 2as$