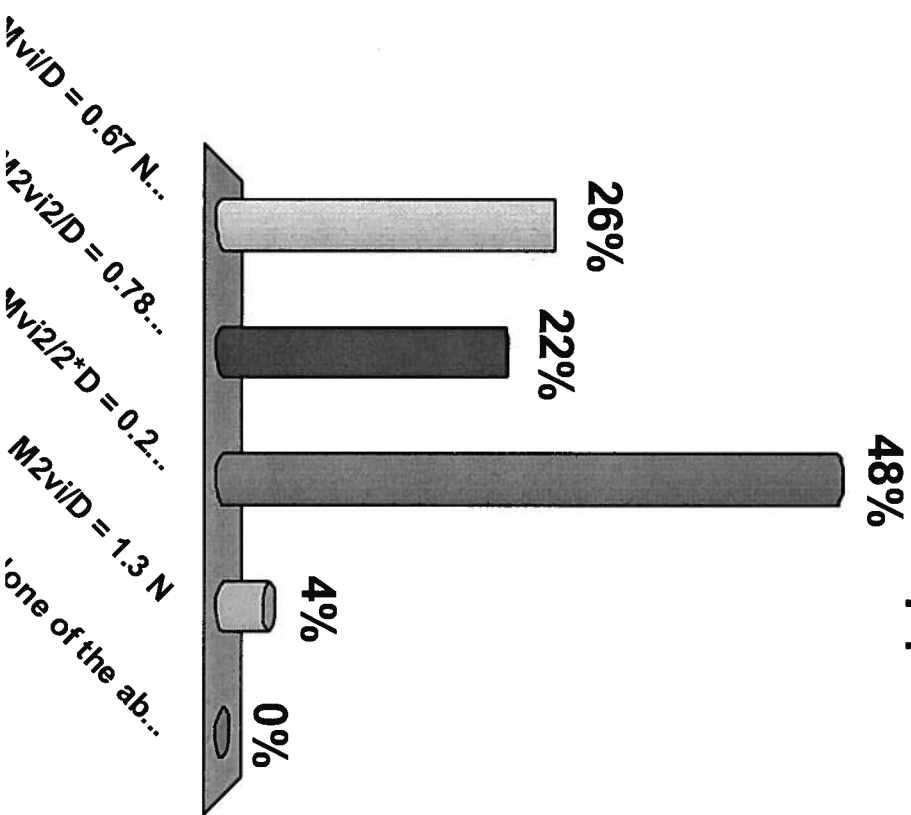


A block ($M = 2\text{kg}$) sliding across the table at a speed of $v_i = 0.6 \text{ m/s}$ comes to rest after traveling $D = 1.8 \text{ m}$. What is the frictional force? $F_{Fr} =$

- a) $Mv_i/D = 0.67 \text{ N}$
- b) $M^2v_i^2/D = 0.78 \text{ N}$
- ✓ c) $Mv_i^2/2 * D = 0.2 \text{ N}$
- d) $M^2v_i/D = 1.3 \text{ N}$
- e) None of the above is within 10%.



The correct answer is

c) $F_{Fr} = 0.2N$; as follows.

- By the Work-Energy Theorem,
- $W_{Fr}^{NET} = KE_f - KE_i = 0 - KE_i$
 $= -Mv_i^2/2 = 2(0.6)^2/2 = 0.36J$;
- Also, $W_{Fr}^{NET} = -D * F_{Fr} = 1.8 F_{Fr} = 0.2N$,
- (where $D = 1.8$ m is the Distance travelled).
- Thus, the correct answer is
 $F_{Fr} = KE_i / D = Mv_i^2/2 * D = 0.2N$