

**Mock Exam: ENERGY**

Name:

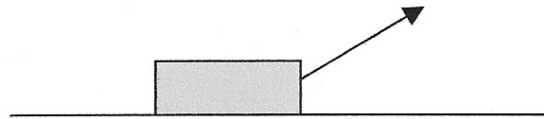
Group:

**1. EXERCISE**

A 1000 N force is exerted on a 500-kg stone. The angle of the force with the direction of motion is  $30^\circ$  and the coefficient of friction is  $\mu=0.15$

Determine:

- the work done by each force and the total work. Suppose that the displacement is 50 m.
- the final velocity (after travelling those 50 m) knowing that the initial velocity is 20 m/s (apply the work-energy theorem)



**2. EXERCISE**

A 10-kg body initially at rest slides down a ramp inclined at an angle of  $30^\circ$  with the horizontal from rest. The initial height is 20 m and the coefficient of friction is  $\mu=0.2$

Determine:

- the initial (height=20 m) and final (height=0) mechanic energies and the work done by the friction force
- the final velocity
- the acceleration along the way