



Exercise 3

Date:

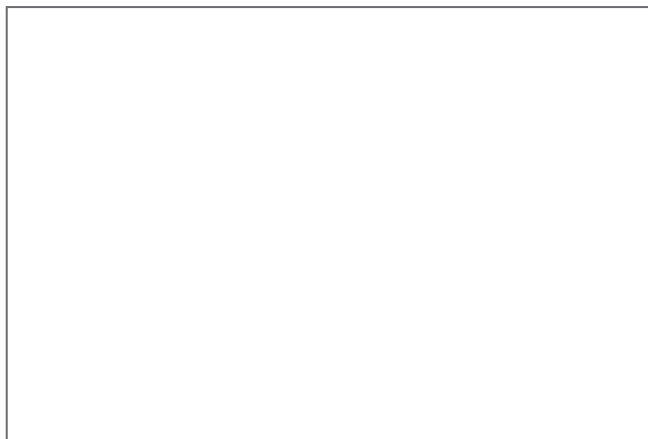
For each of the following:

- a) draw a labelled force diagram:
 - b) identify the type of frictional force:
 - c) give the equation necessary to calculate the frictional force. (If there is enough information, calculate the magnitude of the frictional force.)
1. Noko tries to push a heavy crate (mass 50 kg) across a carpet with a force of 60 N. The crate does not move.

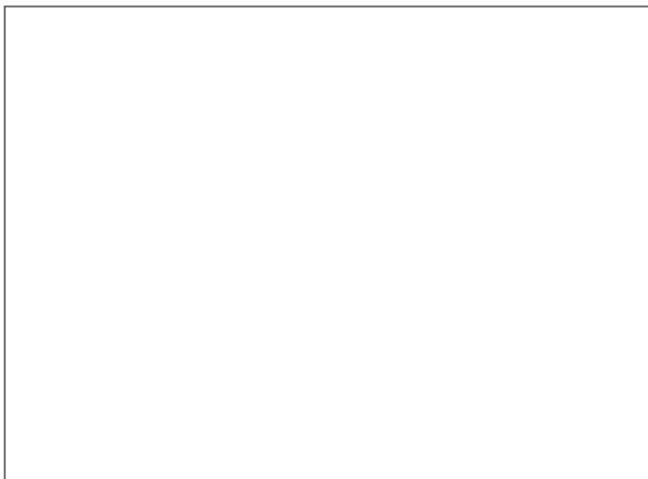
2. Noko pushes harder with a force of 70 N. The crate is just about to move.

3. Noko increases the applied force to 85 N. The crate moves.

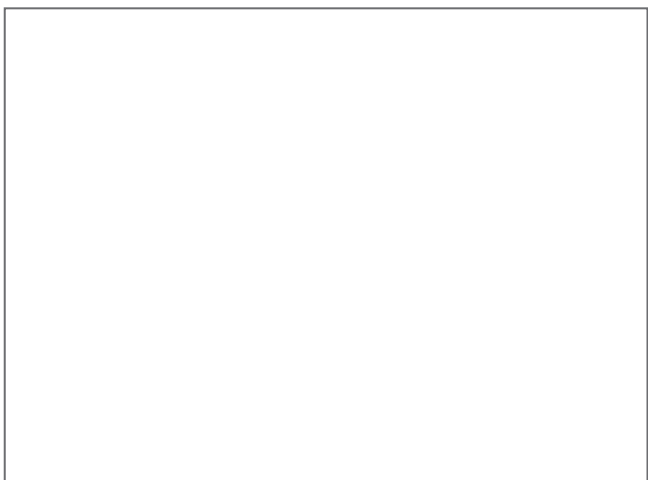
4. A painting with a mass of 5 kg hangs still from a single wire against a wall.



5. A wooden crate of 60 kg rests on the back of a tip-up truck. The back tilts slowly, until it is at an angle of 10° to the horizontal. The crate does not move.

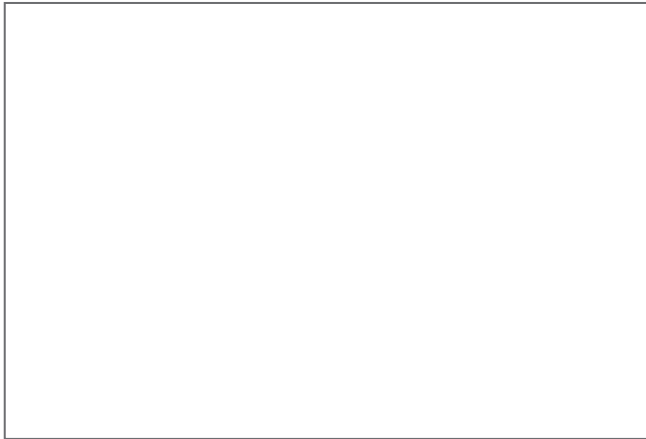


6. The back of the truck tilts some more to an angle of 25° . The crate is at the point of moving.

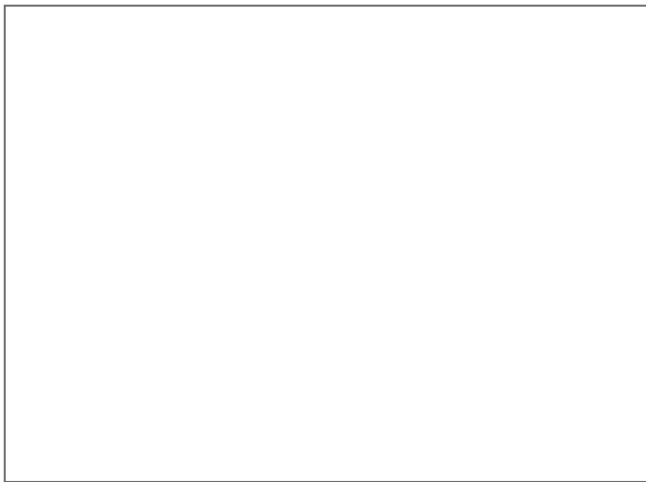




7. Emraan rolls the cricket pitch with a roller of mass 200 kg. The handle of the roller is at an angle of 30° to the horizontal when the roller is pushed across the pitch.



8. Instead of pushing the roller, Emraan decides to pull the roller over the pitch behind him.



9. Sifiso pulls a crate up a hill with a constant velocity that is at an angle of θ to the horizontal.

