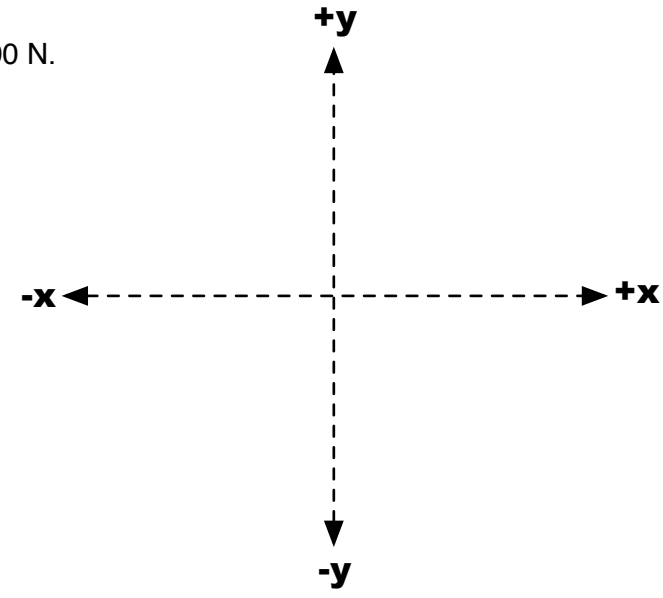
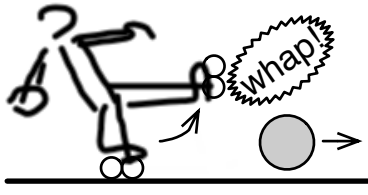
2nd & 3rd Law Assessment

Review

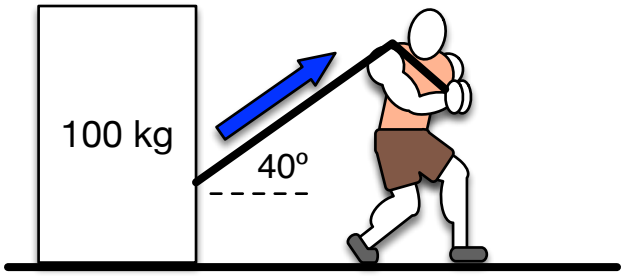
1. The 1,000 kg car's engine pushes forward with an unknown force. Drag from the air opposes its motion with a force of 5,000 N. The car's speeds are shown in the table below.
 a) Figure out the acceleration & Net Force.
 b) Fill in all the forces, including the force of the engine on the diagram.



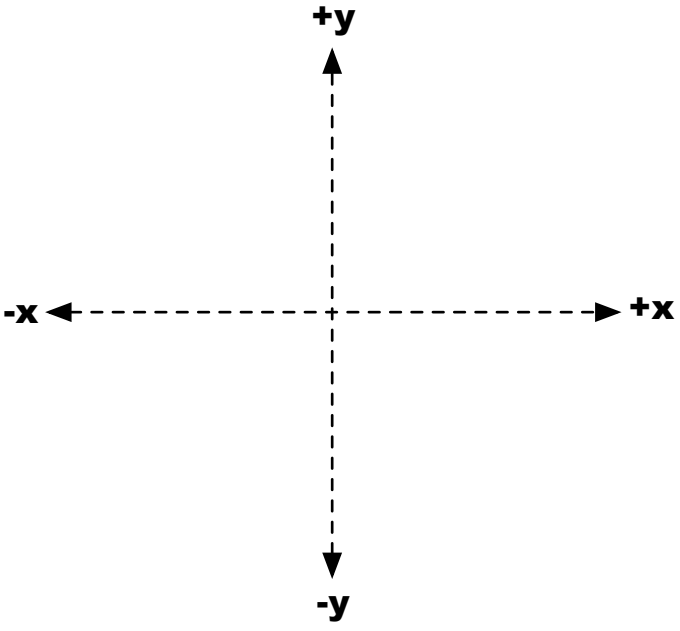
Speed at t = 0	Speed at t = 1 s	Speed at t = 2 s	Speed at t = 3 s	Speed at t = 4 s
10 m/s	13 m/s	16 m/s	19 m/s	22 m/s

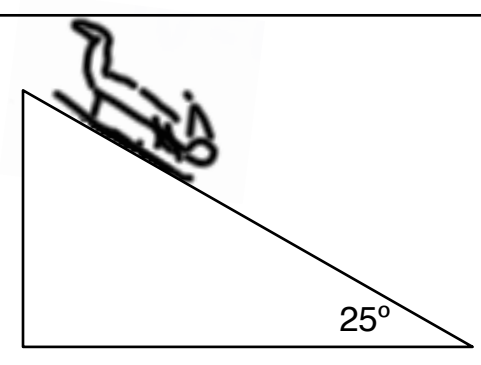


2. The kid kicks the 3 kg ball with a force of 36 N to the right. (Assume no drag or friction on the ball.)
 a) What is the acceleration of the ball?
 b) The kid, whose mass is 48 kg, happens to be wearing roller blades with minimal friction. What is the kid's acceleration? In which direction?



3. The person pulls the rope with a force of 500 N. There is 150 N of friction between the box and the floor. Figure out and put all forces on the diagram Find the net force and acceleration of the box in the x-direction.





4. The 40 kg sledder is coming down the hill. The coefficient of friction is 0.10. Figure out and put all forces on the diagram. Find the net force and acceleration in the x-direction.