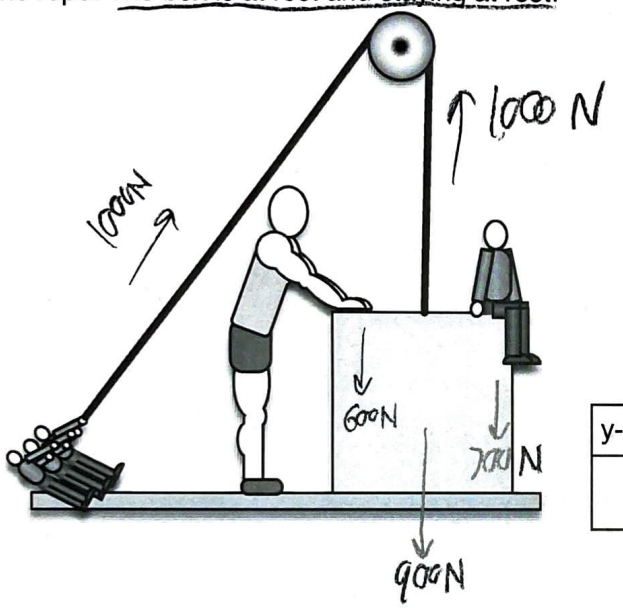
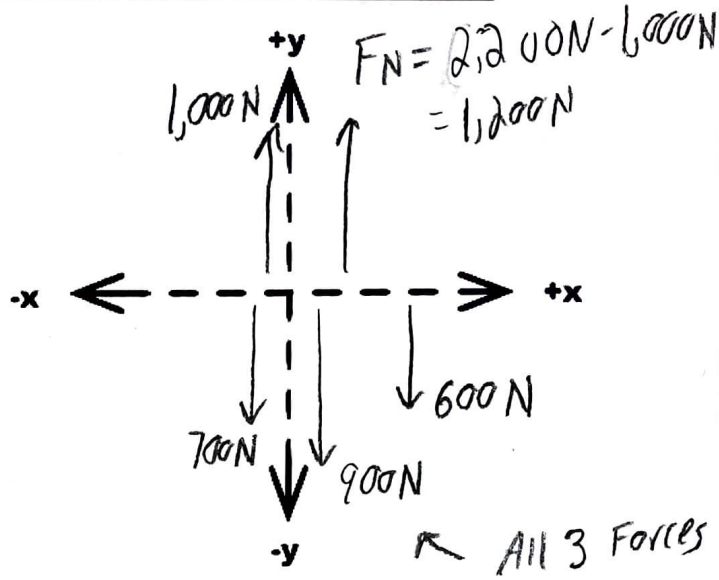
Deeper Understanding (Cycles 1-3) Review

1. Draw and label all forces on the FBD.
Determine the Normal Force and the Net Force.

The box is 90 kg. The person sitting on the box is 70 kg. The giant pushes down with a force of 600 N. The people on the ground are putting 1,000 N of tension in the rope. The box is at rest and staying at rest!





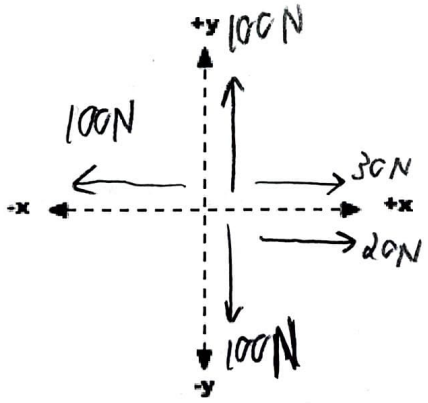
y-direction Fnet	Normal Force
0	1,200 N

2. Sketch a realistic situation where the net forces and motions shown are correct.

Include 2 forces in the y-direction and 3 forces in the x-direction.

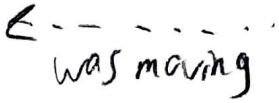
Make sure to diagram the forces.

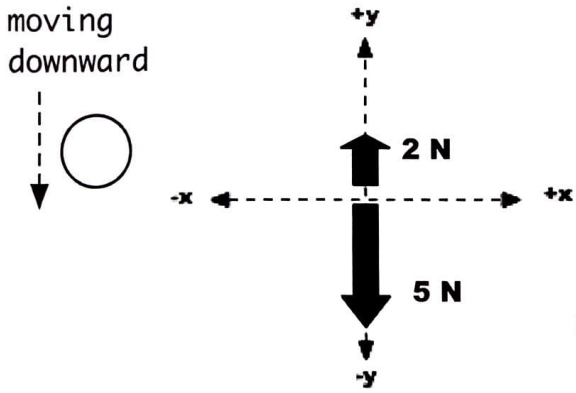
Answers can vary
This is just an example



x-direction Fnet	y-direction Fnet
-50 N	0 N

- ☒ gaining speed. ☐ gaining speed.
- ☐ constant speed. ☒ constant speed.
- ☐ losing speed. ☐ losing speed.





3. A ball was dropped from a height a few seconds ago. The drag and weight are shown on the force diagram right now.

a) What is happening to the ball's speed right now?
b) If you were to check back a second later, what would change?
c) If you were to check back a second later, what would be the same?
d) What would happen to the net force?

a.) gaining speed

b.) Drag force would be greater

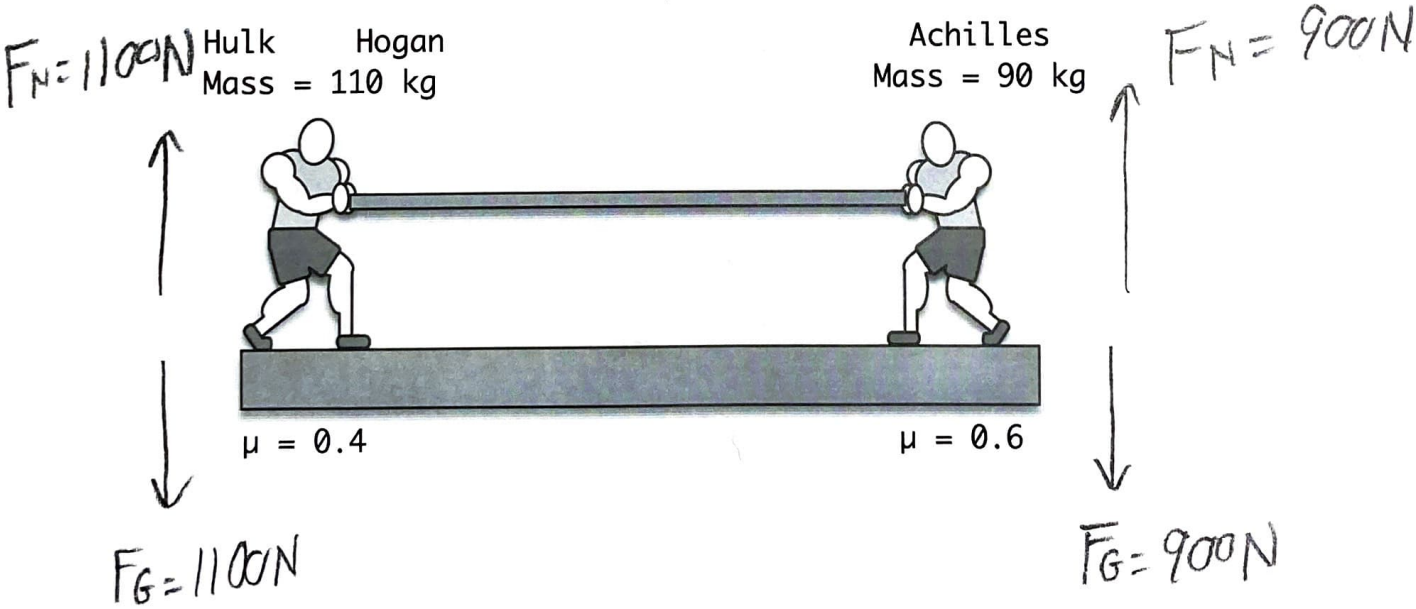
c.) Drag would equal weight force & the ball would be at terminal velocity

d.) $F_{Net} = 0$

4. It's Greek Legends vs Legends of WWF Wrestling!

Make an argument about who is most likely to win. (Show calculations.)

Suggest a change to one of the numbers that would be likely to prolong the contest.



$F_F = (1100N) \times (0.4) = 440N$

$F_F = (900N)(0.6) = 540N$

Achilles wins because he has more friction! Tension is the same for both!