Name _____

Using Newton's Second Law to Find the Force of Friction
From Flipping Physics
https://www.flippingphysics.com/second-law-friction.html

How do they find the acceleration of the hockey puck?

What is the problem with the *first free-body diagram* they draw?

Draw the correct *free-body diagram* for the hockey puck:

Why is the acceleration positive even though the puck is slowing down?

Name _____

Solve each of the "Replica Problems" based on the problem in the video.
The method of solving the problem is *very similar*.

$$\boldsymbol{a = \frac{v_f - v_i}{\Delta t}}$$

Original Problem
You slide a 56-gram street hockey puck on a wooden board.
The graph of its velocity as a function of time is shown.
What is the magnitude of the force of friction between the puck and the wooden board?

Replica Problem #1
You slide a 48-gram street hockey puck on a wooden board.
[Don't forget to convert the mass to grams!
Its initial velocity is 4 m/s and its final velocity is 0 after a time of 3 seconds.
[Find the *acceleration* with these numbers!]
What is the magnitude of the force of friction between the puck and the wooden board?

Replica Problem #2
You slide a 62-gram street hockey puck on a wooden board.
Its initial velocity is 5 m/s and its final velocity is 2 m/s after a time of 4 seconds.
What is the magnitude of the force of friction between the puck and the wooden board?