

Name _____ # _____

Date _____ Pd. _____

Unit 3: Physics Review Team Poster

To review for your Unit 3 Test, you will be working with your team to work out a physics problem to present on a poster paper. You will be allowed to use your notebooks to find formulas, notes, and explanations to help you complete the poster. You will also be using the CPM math team roles to complete this poster. On the poster, be sure to show all formulas you have used and the calculations work that you have done to arrive at your answers. Your calculations need to be correct, as you need the previous calculation to complete the next calculation. Be sure to follow all directions.

PROBLEM:

A 4-wheeled wagon was moving on a tile floor that imposed a friction of $.025\text{N}$ on each wheel. The total distance measured that the wagon traveled was 140 meters in duration of 70 seconds.

- a. Calculate the speed of the wagon during this time. (Speed 2)

During that time, approximately 35 seconds, the wagon had traveled a distance of 50 meters.

- b. Calculate the speed of the wagon at this point in time. Please label this Speed 1.
- c. Calculate the acceleration of the wagon based on Speed 2 (the first speed calculated) and Speed 1. Hint: you might need to calculate time first.

The mass of the wagon when it is empty, as it is now, is 30kg .

- d. Calculate the forward force based on the mass and acceleration from the previous calculation.

If two 10kg boxes were put in the wagon, how would the acceleration change if the forward force remained the same?

- e. Calculate the new acceleration based on the new mass and previous calculated forward force. Be sure to state with a complete sentence how the acceleration has changed.

The two boxes remain in the wagon, but what if the force was changed to $.5\text{N}$?

- f. Calculate the new acceleration based on the new force value and the mass of the wagon. Be sure to state with a complete sentence the change in acceleration.
- g. Now, using the current forward force value, the mass to calculate weight, and the initially stated friction of the floor, draw and label a force diagram for the wagon.

