

Handed Out: _____
Due: _____

Name: _____
Date: _____

Newton's 2nd Law

Physical Science and Technology

Instructions: Please use your own paper on these problems. At the top of your paper, write "Newton's 2nd Law". Use the Five Steps for each of these problems, unless indicated otherwise.

1. Mr. Kirsch is throwing a golf ball into Mr. Bregar's face. The golf ball has a mass of 0.04 kg, and Mr. Kirsch accelerates it at a rate of 5.4 m/s/s. What is the size of the overall (or net) force acting on the golf ball?

2. Mr. Bregar slams into a cart of bricks. The cart of bricks has a mass of 182.44 kg, and Mr. Bregar causes it to accelerate at a rate of 2.3 m/s/s. What was the size of the overall (net) force acting on the cart of bricks?

3. A rocket is traveling at 7.8 m/s. Mr. Bregar pushes backwards against the rocket, creating a net backwards force. The rocket continues to travel forwards. In what direction is the rocket accelerating, forwards or backwards? (You do not need to use the Five Steps for this problem).

4. Mr. Bregar kicks a soccer ball full of cement. The soccer ball has a mass of 17.8 kg. Mr. Bregar kicks it, creating a net force of 18.4 Newtons acting on the soccer ball. How quickly does the soccer ball accelerate?

5. Mr. Kirsch drops a load of wood on Mr. Bregar. The wood strikes Mr. Bregar, creating a net force of 478.22 Newtons acting on Mr. Bregar, and causes Mr. Bregar to accelerate at a rate of 28.3 m/s/s. What is Mr. Bregar's mass?

6. A giant orangutan steps on Mr. Bregar's foot. The orangutan has a mass of 102.7 kg and steps on Mr. Bregar's foot, creating a net (overall) force of 1018.2 Newtons. How quickly does Mr. Bregar's foot accelerate?

7. Mr. Bregar is flying across the room with a constant velocity of 7.6 m/s. He has a mass of 82.3 kg. He is not accelerating in any direction. What is the size of the net force acting on Mr. Bregar?