

Name _____

Science

Class _____

Date _____

Homework 3-16: Calculating force worksheet

Answer on a separate paper, show all work!

1. A man hits a golf ball (0.2 kg) which accelerates at a rate of 20 m/s^2 . What amount of force acted on the ball ($F=m \cdot a$)?
2. You give a shopping cart a shove down the aisle. The cart is full of groceries and has a mass of 18 kg. The cart accelerates at a rate of 3 m/s^2 . How much force did you exert on the cart?
3. The wind pushes a paper cup along the sand at a beach. The cup has a mass of 25 grams (= kg) and accelerates at a rate of 5 m/s^2 . How much force (in Newton) is the wind exerting on the cup?
4. You push a friend sitting on a swing with a force of 200N. She accelerates at a rate of 4 m/s^2 . Find the mass of your friend in kg (use $m=F/a$).
5. How much force would it take to push another, larger friend who has a mass of 70 kg to accelerate at the same rate of 4 m/s^2 ?
6. A worker drops his hammer off the roof of a house. The hammer has a mass of 9 kg, and gravity accelerates it at the usual 9.8 m/s^2 . How much force does the earth apply to the hammer?