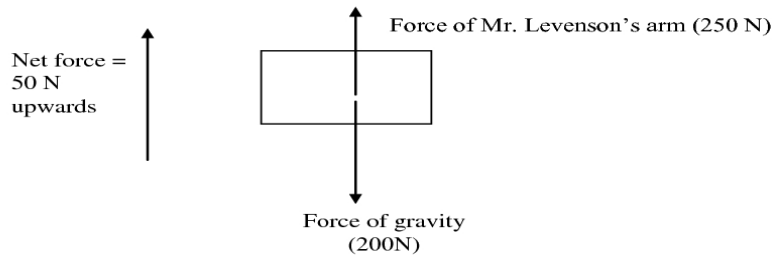


Forces Worksheet

1. What is a force?
2. What are unbalanced forces and give an example?
3. What are balanced forces and give an example?

Calculate the net force on the object described in each situation. Draw a free body diagram for each and show the directions of forces as well as the total net force and direction of net force.

Example: Mr. Levenson lifts the heavy box over his head with one push of the arm and a force of 250 newtons. Gravity is pulling down the mass with 200 Newtons. What is the net force and direction of the box?



4. A box is being pushed by two stellar science students, one on each side of the box. Daren is pushing the box with a force of 10 N to the left. Richard is pushing the box with a force of 15 N to the right. Who is the stronger individual and what is the net force and direction on the box.
5. During tug of war Jordan felt he was superman and attempted to beat Connor. Connor with one arm on the rope and the other at his side applied a 100 N force to the left, while Jordan applied a 100 N force with both hands to the right. What is the net force and direction on the rope?
6. Connor finally decided to take this seriously and put both hands on the rope and applied a 150 N force to the left, while Jordan still struggled with his 100 N force to the right. What is the net force and direction of motion.
7. Katie and Matt were attempting to push Cameron on the scooter with enough force so Cameron would run into Mr. Levenson. They figured out they needed a 50 N force to run the scooter into Mr. Levenson. Katie and Matt were both applying force toward Mr. Levenson. Katie was applying a 20 N force to the left, and Matt was applying (with all of her strength) a force of 15 N to the left. Did the Cameron scooter rocket hit Mr. Levenson. How can they get it to hit him?
8. In a third period battle the girls were able to overcome the boys 3 times in the tug of war. The boys had 8 individuals each pulling with a force of 30 N. The 10 girls were able to pull the rope toward them with a net force of 50 N. What was the minimum amount of force each of the 10 girls applied to the rope.
9. During 3rd period Bitzer was a beast. He resisted the forces applied by 5 people in his class all at once. Each person applied a force of 17 N and Bitzer still did not move. How much force was Bitzer pushing back with and how many people would it take to push Bitzer if he can withstand a force of 250 N?
10. During 6th period we put Caroline in a box because she was talking too much. We still heard her voice through the box so we decided to push her outside. The force of friction of the ground on the box was 68 N. If Mr. Levenson can apply a force of 25 N and every other 8th grade student can apply a force of 6 N. How many students would Mr. Levenson need to make the box start moving and go outside. (Think quickly, the faster we move the box out, the quicker she stops talking)