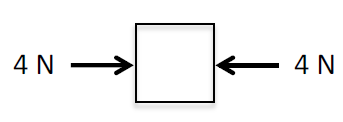
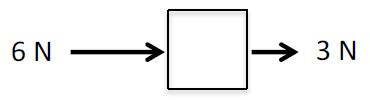
**FREE-BODY DIAGRAMS (aka FORCE DIAGRAMS)** are drawings used to show the relative size and direction of all forces acting upon an object in a given situation

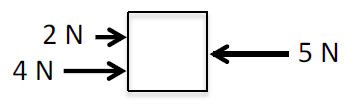
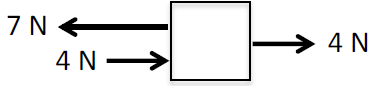
**NET FORCE on an object is the combination of all the forces acting on it.** Don’t forget to include the direction.

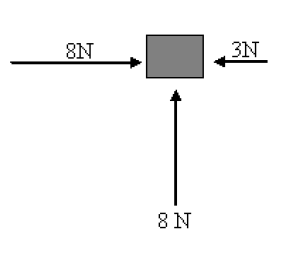
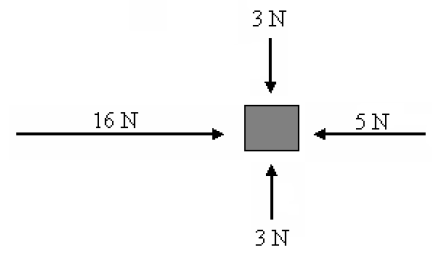
**BALANCED forces don't cause any change in the motion of an object.** Balanced forces are equal and in opposite directions.

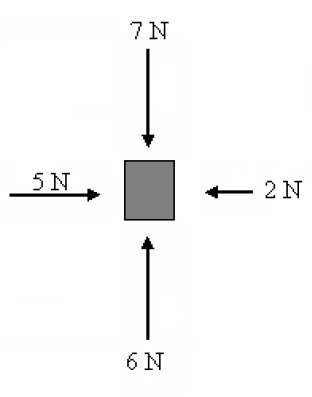
**UNBALANCED forces cause the object to move.** An object that is not already moving will begin to move in the direction of the larger force. An object that is already moving will change its speed and/or its direction.

**Determine the net force in the free-body diagrams (FBD) below:**



**Now you will draw the free-body diagrams (FBD)!**

Identify all the forces acting **directly** on the object. Vectors (arrows) will represent each force.

Here are 2 examples complete with the labels that you will use at times.

**Each vector MUST have a label!**

Tommy is pushing a box to the right. He’s making the box speed up.

Barb is not moving.

**Coach Lankster and his wife were moving their new couch. Coach Lankster pulls to the right with a force of 30 N while Mrs. Lankster pushes to the right with a force of 25 N. The frictional force is 10 N.**

**Draw the FBD for the couch.**

**What is the net force of the couch?**

|  |  |
| --- | --- |
| **Waiter is holding up a tray while talking to a customer.** | Draw the FBD for the tray. |
|  | An egg is free-falling from a nest in a tree.  Neglect air resistance. |