**"May the Force be with You!"**
Free Body Diagrams Packet

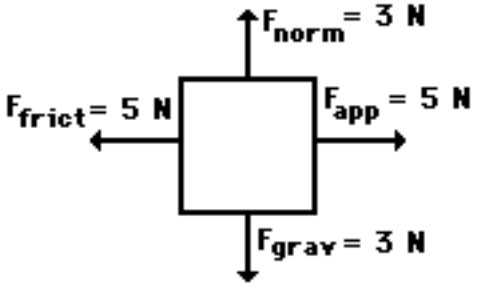
Name:_____
Period: _____
Date: _____

1. **Types of Forces:**
   Contact Forces:
   1.
   2.
   3.
   4.
   5.
   6.

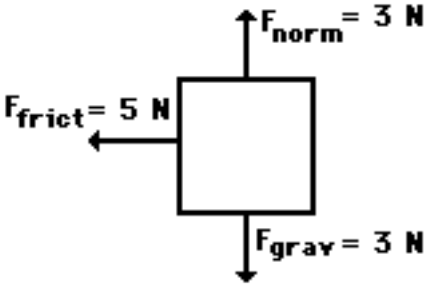
   Non Contact forces:
   1.
   2.
   3.

2. Free-body diagrams for four situations are shown below. For each situation**, determine the net force acting upon the object**. For each situation, write if the forces are **BALANCED or UNBALANCED.**

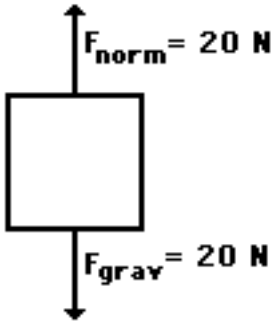
Situation A



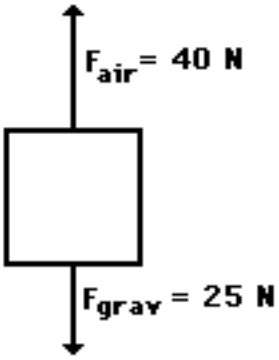

Situation B



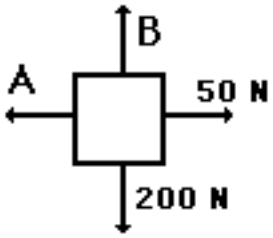

Situation C



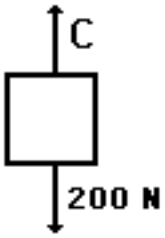

Situation D



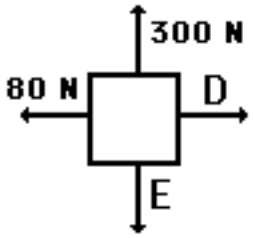
3. Free-body diagrams for four situations are shown below. The net force is known for each situation. However, the magnitudes of a few of the individual forces are not known. Analyze each situation individually and determine the magnitude of the unknown forces.



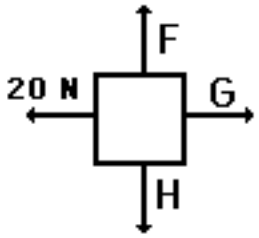

$F_{net}$ = 0 N




$F_{net}$ = 900 N, up




$F_{net}$ = 60 N, left




$F_{net}$ = 30 N, right

**Draw your Own Free Body Diagrams. You don't need to include the magnitude (a number value) of the force, just draw the direction of the force and label it. Also, you don't have to draw the object, a square will work just fine!**

4. A book is at rest on a table-top. A free-body diagram for this situation looks like this:

5. A chandelier is hanging from the ceiling. A free-body diagram for this situation looks like this:

6. An egg is free-falling from a nest in a tree. Ignore air resistance. A free-body diagram for this situation looks like this:

7. A hang glider is gliding through the air towards the ground. Include air resistance. A free-body diagram for this situation looks like this:

8. A rightward force is applied to a book in order to move it across a desk with a rightward acceleration. Consider frictional forces. Ignore air resistance. A free-body diagram for this situation looks like this:

9. A college student rests a backpack upon his shoulder. The pack is suspended motionless by one strap from one shoulder. A free-body diagram for the backpack in this situation looks like this:

10. A car is stopped at a stop sign. A free body diagram of the car in this situation looks like this:

11. A car is coasting to the right and slowing down. A free-body diagram for this situation looks like this:

12. A car is parked on a sloped street in San Francisco. (The car is using it's breaks to prevent from rolling down the hill.) A free-body diagram of this situation looks like this: