Name: _____ Date: _____ Period: _____

Equilibrium

- A ball sits at rest on a table.
- What forces are acting on the ball? _____
- Draw a free body diagram for the ball.

- Because the ball is at rest, we know _____

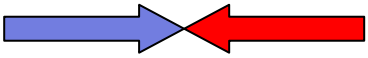
The Equilibrium Rule ($\Sigma F = 0$)

- The _____is the combination of all the forces acting on an object
- If all of the forces on an object _____, the net force is equal to zero.
- If the net force on the object is equal to zero, the object is in _____

2 N Left 2 N Right

$\Sigma F =$

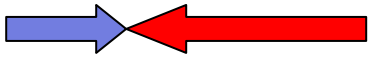
2 N Right 2 N Left



$\Sigma F =$

- These objects are in _____equilibrium
- No change in the objects' _____will occur
- If an object is at rest, it is in _____equilibrium
- To change the object's motion, an _____force must be applied.

1 N Right 2 N Left



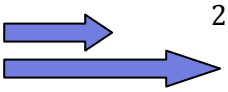
ΣF =

1 N Left 2 N Right

ΣF =

1 N Right

2 N Right



ΣF =

- Once in motion, the ball will continue at a _____
- If an object is moving at a constant velocity, it is in _____equilibrium
- The object will continue moving at a constant velocity until an _____force acts on it.

Name: _____ Date: _____ Period: _____

Draw the forces acting on the crate in each situation.

A crate of apples exerts a force of 50 N on the floor.

1. What is the support force provided by the floor? _____

2. What type of equilibrium is the crate in? _____

The crate is pushed and begins to move.

3. What type of force is provided to get the crate to move? _____

The crate continues moving at a constant velocity.

4. If the applied force is equal to 35 N, what is the force of friction? _____

5. What type of equilibrium is the crate in? _____