

Force: Push or pull

Unit: Newtons (N)

Vector!

Types of Forces

- Gravity
- Normal (Support)
- Applied Force
- Friction
- Spring
- Tension
- Air Resistance

Free Body Diagrams (FBD)

- Box to represent the object
- Arrows with labels to represent the forces
- Tick marks to show equality between forces
- Rest or constant velocity: all forces are equal!

A ball is pushed across a table at a constant velocity.

A ball is pushed across the table and is slowing down.

FBD Practice

1. A ball sits on a desk
2. A ball is dropped from your hand
3. A ball is thrown up in the air
4. A ball rolls off a desk onto the ground
5. A ball rolls across a desk with friction and slows down
6. A ball rolls up a ramp with friction
7. A ball rolls down a ramp
8. A ball is thrown down off a building

Net Force

Total force in a system (x and y are separate)

A box is pushed with 10N left and 20 N right. What is the net force?

Is the net force zero or nonzero in the x and the y?

1. A ball sits on a desk
2. A ball is dropped from your hand
3. A ball is thrown up in the air
4. A ball rolls off a desk onto the ground
5. A ball rolls across a desk with friction and slows down
6. A ball rolls up a ramp with friction
7. A ball rolls down a ramp
8. A ball is thrown down off a building

Practice Packet Pages 1 and 2