

All sections marked with a ⚡ are considered essential concepts and must be completed to receive full credit on WS.

1. F_{net} B	A. The object is not changing velocity; the object is not accelerating. ⚡
2. ΣF D	B. The net force.
3. $\Delta v = 0$ A	C. Force 1 is stronger than force 2.
4. $a \neq 0$ E	D. Add up all of the forces.
5. $F_1 > F_2$ C	E. The object is accelerating.

1. Inertia E	A. Any action that can cause motion. ⚡
2. Mass C	B. When the positive forces are equal to the negative forces.
3. Net force D	C. The amount of matter in an object
4. Force B	D. Total of all of the forces on an object.
5. Balanced B	E. Ability of an object to resist change of motion.

Which has more inertia? ⚡

A train or a car?

A ping pong ball or a baseball?

A fast bowling ball or a slow bowling ball? Same

A 20 kg mass or a 10 kg mass?

A rock on the earth or a rock in space? Same

Balanced or Unbalanced Forces? ⚡

B An person sitting on a chair?	B If $\Delta v = 0$?
U 20 N left and 30 N right?	U If $a \neq 0$?
B An object at constant speed?	B If $a = 0$?
U An accelerating plane?	U If $\Delta v \neq 0$?
B An object at rest?	U A stopping car?

Draw arrows and label any forces you can think of for the following picture:

If $F_1 > F_2$, "a" is which way? F_1

If $F_1 = F_2$, "a" is which way? No

If $F_1 < F_2$, "a" is which way? F_2

If the forces are balanced, what is the net force? 0N

If the forces are unbalanced, can it be at rest? No

If $F_1 = F_2$ does it have to be at rest? No, just not accelerating

How can $v = 0$ if $F_2 > F_1$? when it changes direction

If $F_2 > F_1$ does it have to be moving to the right? No, but it is accelerating right

Which of Newton's Three Laws Applies: Law 1, 2, or 3?

3 When you put a book on a table gravity pulls down on the book and the table pushes up on the book. ⚡

1 A person is pushed forward into their seatbelt when a car stops.

2 A larger car takes more force to move.

3 A person leans on a wall and the wall pushes back.

1 A brick sits on a table until you push on it.

Calculate the Net Force ⚡

Which way will it accelerate?

30 N ← [M] → 25 N	$-30N + 25N$	-5N Left
6 N ← [M] → 8 N	2N	Right
12 N ← [M] → 12 N	0N	Nowhere

⚡

A [.....]

B ← [.....]

C [.....]

D → [.....]

E [.....]

A, C Which have $F_{net} = 0$.

A, C Which have balanced forces?

B, D, E Which have unbalanced forces?

D Which have a positive net force?

B Which have a negative net force?

For each tape timer, if there is a net force, draw its direction.

$F_{net} = 15 N$

What is the magnitude of the force pulling to the left? ⚡

$\Sigma F = m \cdot a$

$15N = F_1 + 30N$ $F_1 = -15N$

Two forces (4N and 3N) pull to the left, while a 12 N force pulls to the right. Find the net force.

$-7N$ ← [M] → $12N$

$F_{net} = F_1 + F_2 + F_3$

$= 3N + 4N + 12N$

$F_{net} = 5N$

Why does it take a force to change an object's motion?

It has inertia (mass)