

Practice Newton's Laws

- The amount of inertia possessed by an object is dependent solely upon its _____.
- If a moose were chasing you through the woods, its enormous mass would be very threatening. But if you zigzagged, then its great mass would be to your advantage. Explain why.
- Inertia can best be described as _____.
 - the force which keeps moving objects moving and stationary objects at rest.
 - the willingness of an object to eventually lose its motion
 - the force which causes all objects to stop
 - the tendency of any object to resist change and keep doing whatever its doing
- Mass and velocity values for a variety of objects are listed below. Rank the objects from smallest to greatest inertia. _____ < _____ < _____ < _____



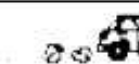
$v = 2 \text{ m/s}$
 $m = 10 \text{ kg}$
Object A

$v = 0 \text{ m/s}$
 $m = 20 \text{ kg}$
Object B

$v = 4 \text{ m/s}$
 $m = 5 \text{ kg}$
Object C

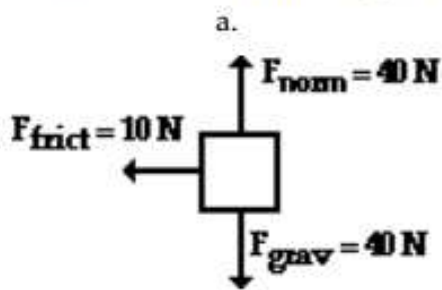
$v = 3 \text{ m/s}$
 $m = 8 \text{ kg}$
Object D

- Renatta Oyle is having car troubles. She is notorious for the trail of oil drops that she leaves on the streets of Glenview. Observe the following oil traces and indicate whether Renatta's car is being acted upon by an unbalanced force. Give a reason for your answers.

		Unbalanced Force?
a.	 Reason: _____	Yes or No
b.	 Reason: _____	Yes or No
c.	 Reason: _____	Yes or No

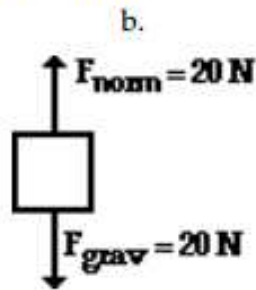
- If the net force acting upon an object is 0 N, then the object MUST _____. Circle one answer.
 - be moving
 - be accelerating
 - be at rest
 - be moving with a constant speed in the same direction
 - either c or d.
- An object's mass refers to _____ and an object's weight refers to _____. Fill in each blank.
 - the amount of space it takes up
 - the force of gravitational attraction to Earth
 - how dense an object is
 - the amount of stuff present in the object

8. A free-body diagrams show all the individual forces acting upon an object. The net force is the *vector sum* of all these forces (ΣF). Determine the net force and state if there is an acceleration.



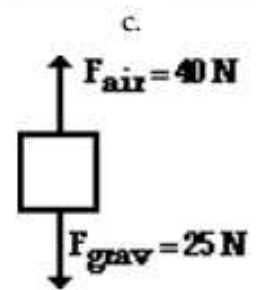
$\Sigma F =$ _____

Accel'n? Yes or No



$\Sigma F =$ _____

Accel'n? Yes or No



$\Sigma F =$ _____

Accel'n? Yes or No

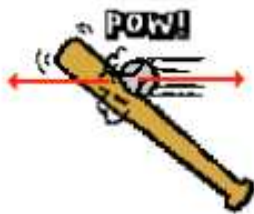
9. Complete the following table showing the relationship between mass and weight.

Object	Mass	Approx. Weight
Melon	1 kg	
Apple		~1.0 N
Pat Eatladee	25 kg	

10. For each force diagram, determine the net or resultant force (ΣF), the mass and the acceleration of the object. Identify the direction (the second blank) of the two vector quantities. NOTE: F_{grav} stands for the weight of the object.

<p>a.</p> <p>$\Sigma F =$ _____, _____</p> <p>m = _____</p> <p>a = _____, _____</p>	<p>b.</p> <p>$\Sigma F =$ _____, _____</p> <p>m = _____</p> <p>a = _____, _____</p>
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11. For each stated *action force*, identify the *reaction force*.



Bat hits ball.



Man pushes car.



Bus hits bug.
