Name _____ Hour _____

FORCE NOTES

Force-

unit for force: _____ ( )- *the force needed to* _____

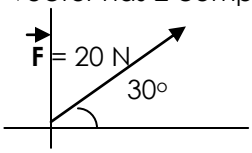
net force = _____ force acting on object

_____: Force that opposes motion

Forces are vectors!

vector- any quantity that has _____ and _____

Every vector has 2 components: an x component and a y component. Force is a vector.



Equilibrium- _____**Total/Net force =** _____

2 cases

1. object is at rest
2. object is moving at a constant speed

***Terminal Velocity**: _____

Newton's Laws of Motion:

Newton's 1st Law* - *An object at rest remains at rest and an object in motion continues in motion unless acted upon by an outside force*

*This is also known as Law of _____- _____

Examples:

Egg Spin Ball and card demo Seatbelt Tablecloth

Newton's 2nd Law -

1 N = _____

Mass and weight are not the same thing!

Mass- *the amount of* ***matter*** *in* _____

Weight- *the* ***force*** *due to gravity on the mass in* _____

Force and mass are _____ related.
Force and acceleration are _____ related.
Mass and acceleration are _____ related

Name _____ Hour _____

Ex. 1 Calculate the **mass** in kilograms of a 150 lb person. (1 kg = 2.2 lb)

Ex. 2: Find the **weight** of a 150 lb person in Newtons. F = ma, or F_g = mg or w = mg

*****Weight is a _____ measured in _____**

Ex. 3: A 6-lb. mallard is trying to land on a frozen pond. The duck hits the ice going at 15 m/s and stops after a distance of 20 meters. Calculate the **force** due to friction.

Newton's 3rd Law- *For every action there is an equal and opposite reaction*
Action/reaction pair*:*

Bucket Day Questions for Chapter 4

1) What is a vector? _____
2) What is a force? _____
3) What unit do we use to measure force? _____
4) What is meant by net force? _____
5) What is Newton's 1st Law? _____
6) What is Newton's 2nd Law? *(just the equation is fine)*_____
7) What is Newton's 3rd Law? _____
8) What is the unit for acceleration? _____
9) What is the unit for mass? _____
10) What is equilibrium? _____
11) What is one of the two cases when equilibrium can occur? _____
12) If an object is in equilibrium, what is the sum of all of the forces acting on it? _____
13) What is inertia? _____
14) What is the mathematical relationship between vector F, F_x and F_y ? _____
15) If you know an object's mass, how can you find its weight in Newtons? _____
16) If you know an object's weight in Newtons, how can you find its mass? _____
17) What quantity do you get if you divide force by mass? _____
18) What exactly is a Newton? (Definition)_____
19) What other units are equal to a Newton? _____
20) Force is a vector because…_____
21) What quantity do you get if you divide force by acceleration? _____
22) If you know an object's weight in lbs, how can you find its weight in Newtons? _____
23) What outside force slows down an object? _____
24) Which can change when you change locations, mass or weight? _____
25) What quantity do you get if you divide weight by acceleration? _____
26) What unit do you end up with when you divide force by mass? _____
27) What unit do you end up with when you divide weight by acceleration? _____
28) What unit do you get when you multiply mass and acceleration? _____
29) What unit do you get when you divide force by acceleration? _____
30) Terminal velocity is when the force of your weight = the force of _____