1. Define the following terms:

a. Force push or pull that I body exerts on

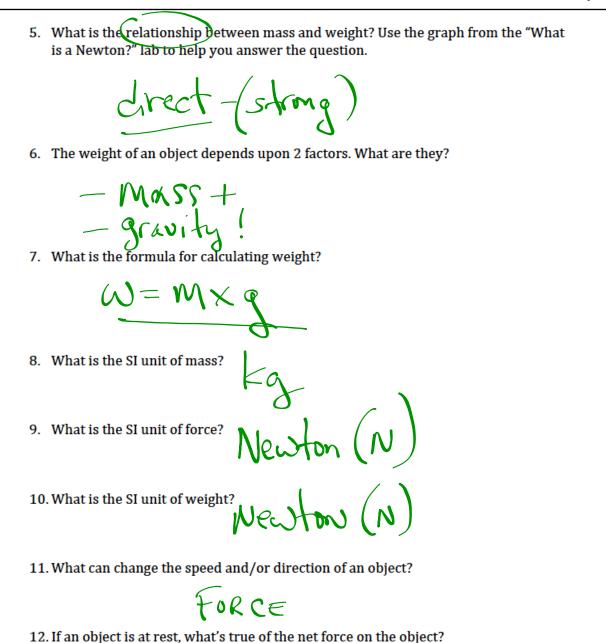
- b. Net Force Swm of all forces acting on object
- c. Balanced Forces

- e. Normal Force Perpendicular force of surface ) object pressing on it f. Free-Body Diagram
  - diagran shows all forces acting on object
- g. Mass amount of matter on objects has
- h. Weight

i. Friction

fire that resist motion

j. Static Friction FRICTION between objects that are not ... k. Rolling Friction force that resists notion of rolling objects l. Sliding Friction force that resists notion of 2 dyects moving over each other m. Air Friction friction force when object disrupts air n. Viscous Friction Friction of object wording through water o. Vector Quantity Variable has size + direction 2. In the "Friction" lab, when the energy car and sled were launched on the level track, what was true of the values for acceleration for both? regative! 3. Why were the acceleration values as described in the previous question? decelerating - slowing dawn 4. If an organism gains weight does it also gain mass?



nefforce = O

13. What's also true about the acceleration of the object in the previous question?

accel = O

14. If an object is moving in a straight line at constant speed, what's true of the net force on the object?

15. What's also true about the acceleration of the object in the previous question?

accel = 0

16. What's the relationship between balanced forces and a net force of zero?



17. Is force a vector quantity? Why or why not?

ES - has drection

18. Does mass change with location? Why or why not?

NO - ant. of matter in you doesn't change

19. Does weight change with location? Why or why not?

YES - growity strength change,

20. Do all forces act through direct contact? If not, name a force that does not require direct contact to affect objects.

No - gravity

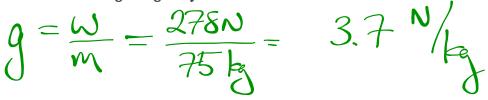
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For each problem below, carry out these steps:

- Write the formula that you will use to solve the problem
- Re-write the formula, substituting known values with units
- Write the answer using the proper unit
- Check you answer for the proper number of significant figures
- Check you work for accuracy
- 1. If a cow has a mass of 300 kg, what is its weight on Earth?

$$W = Mg = (300 kg)(9.8 N/kg) = 3,000 N$$

2. If a human travels to Mars, and has a mass of 75 kg and a weight of 278 Newtons, what is the strength of gravity on Mars?



3. If the strength of gravity on Saturn is 11.2 N/kg, and a pretzel has a mass of 0.01 kg, what is the weight of the pretzel on Saturn?

$$W = mg = 0.01 \text{ kg} \times 11.2 \text{ N/kg} = 0.1 \text{ N}$$
.

4. If the 1.00 cm flag of an energy car passes through a photo gate in 0.0725 seconds, what is the speed of the energy car?

$$S = d/L = \frac{1.00 \text{ cm}}{0.0725 \text{ s}} = 13.8 \text{ cm}/s$$

5. If the speed of an energy car is measured at 140 cm/s at one photo gate, and 0.60 seconds later has a speed of 110 cm/s, what is the acceleration of the energy car?

$$a = \frac{V_{f} - V_{i}}{t} - \frac{10 \text{ cm/s} - 140 \text{ cm/s}}{0.60 \text{ s}}$$
  
=  $\frac{-30 \text{ cm/s}}{0.60 \text{ sec}} = -50. \text{ cm/s/s}.$