REVIEW FOR NEWTON'S LAWS TEST

1. What is Newton's first Law? This law is also called the law of Inertia.

An object in motion stays in motion and an object at rest stays at rest unless acted upon by an outside force.

2. What is Newton's 2nd Law?

F=ma

3. What is Newton's 3rd Law?

For every action there is an equal and opposite reaction.

4. Units of Measurement:

Force is measured in N

Mass is measured in kg

Acceleration is measured in m/s2

5. How much force is required to accelerate a 6kg bowling ball by 2 m/s²?

Formula:	Plug in numbers:	Answer:
F=ma	F= (6kg)(2m/s²)	12 N

6. How much will the bowling ball accelerate if the mass is 4kg and the force is 12 N?

Formula:	Plug in numbers:	Answer:
F=ma	$\frac{12N}{4} = \frac{(4kg)(a)}{4}$	3m/s²

7. How much mass does the bowling ball have if it accelerates at a rate of 3m/s² with a force of 18 N?

Formula:	Plug in numbers:	Answer:
F=ma	$\frac{18N}{3} = \frac{m(3m/s^2)}{3}$	6 kg

8. Mass is measured in kg.

Weight is measured in N.

9. How much does a 13 kg bowling ball weigh?

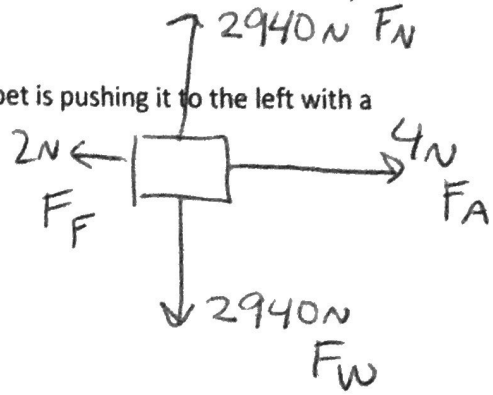
Formula:	Plug in numbers:	Answer:
$F_w = mg$	$F_w = (13\,kg)(9.8)$	127.4 N

10. How much does a 4kg bowling ball weigh?

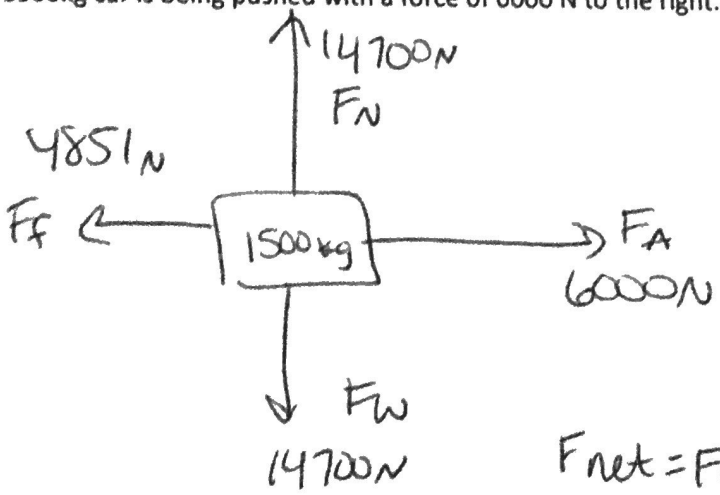
Formula:	Plug in numbers:	Answer:
$F_w = mg$	$F_w = (4\,kg)(9.8)$	39.2 N

11. Draw a free body diagram and clearly label the object's WEIGHT, NORMAL FORCE, APPLIED FORCE, and FRICTIONAL FORCE.

A 300 kg couch is being pushed with a force of 4 N to the right. The carpet is pushing it to the left with a frictional force of 2 N.



(12) A 1500kg car is being pushed with a force of 6000 N to the right. μ= .33



$F_f = \mu F_n$

$F_f = .33(14700N)$

$F_f = 4851$

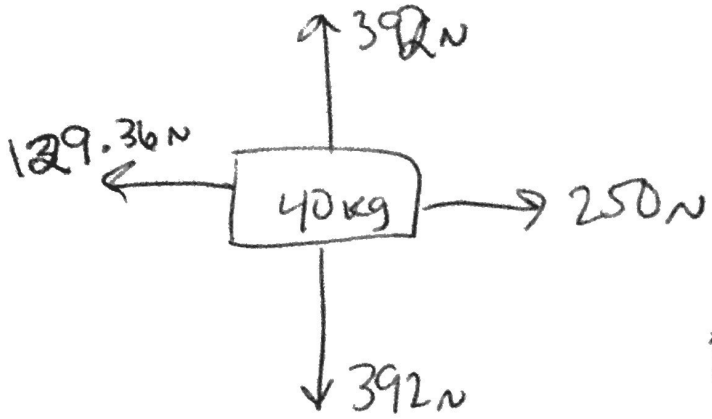
$F_{net} = F_A - F_f$

$6000 - 4851 = 1149N$

12. What is the acceleration of the car?

Formula:	Plug in numbers:	Answer:
$F_{net} = ma$	$1149N = 1500kg(a)$	$0.77\ m/s^2$

(13) A 40kg bike is being pushed with a force of 250 N to the right. μ= .33



$F_f = \mu F_N$

$F_f = .33(392)$

$F_f = 129.36$

$F_{net} = F_A - F_f$

$250 - 129.36$

$F_{net} = 120.64$

13. What is the acceleration of the bike?

Formula:	Plug in numbers:	Answer:
$F_{net} = ma$	$\frac{120.64}{40} = \frac{40kg(a)}{40}$	$3.0\ m/s^2$