REVIEW #3 Newton's Laws

Use this statement for the next three questions.

A car has a mass of 1500 kg. It is traveling 10 m/s.

1. If the car is going a constant velocity in a straight line,
   A. it must still burn fuel to overcome its weight.
   B. it must still burn fuel to overcome its mass.
   C. it must still burn fuel to overcome its friction.
   D. it must burn fuel to overcome its momentum.

2. What net force will make it accelerate at a rate of 3 m/s?
   A. 3000 N
   B. 500 N
   C. 0.002 N
   D. 4500 N

3. It is smart for the driver to be wearing a safety belt in case
   A. he gets hit from behind.
   B. he starts too quickly.
   C. he stops too quickly.
   D. the police stop him.

4. The difference between mass and weight is
   A. that mass has no direction, weight does.
   B. that weight is a force, mass is not.
   C. both A and B.
   D. none of the above.

5. A person is walking 1.0 m/s. He accelerates to a velocity of 4.5 m/s in 2.0 s. If his mass is 70 kg, the force he had to apply to change his motion was
   A. 157.5 N
   B. 35 N
   C. 122.5 N
   D. 1.75 N

6. If you are being chased by an elephant, you zigzag to get safely away from it. You are using the elephant's_____ to you advantage.
   A. weight
   B. mass
   C. speed
   D. size

7. A person is sitting in a car traveling 20 m/s. She gets pushed to the left when the car turns to the right because

A. she is forced to the left.
B. she is still going straight.
C. she is forced to the right.
D. She doesn't go left.

8. The space shuttle not only accelerates when it is taking off, but the acceleration actually increases also. This is because

A. it is applying a greater force as it goes up.
B. gravity gets a lot weaker as you go higher up.
C. the air is thinner the higher you go up.
D. the rocket loses mass all the way up.

9. A force of 800 N is applied to a 350 kg object. It's acceleration is

A. 800 m/s/s.
B. 350 m/s/s.
C. 2.3 m/s/s.
D. 0.44 m/s/s.

Use the following for the next two questions: A 2,000 Kg automobile is traveling down the road at a constant velocity of 55 mi/hr. The engine is providing a force of 2,000 N to turn the wheels.

10. What is the acceleration of the automobile?

A. 1 m/s/s
B. 36.6 m/s/s
C. 0.03 m/s/s
D. 0.0 m/s/s

11. What is the combined force of friction acting on the automobile?

A. 2,000 N
B. 20,000 N
C. 22,000 N
D. 0 N

12. A 150 Kg defensive lineman and a 90 Kg running back have a head-on collision. The defensive lineman felt a force of 900 N.

A. Was the force felt by the running back greater, less, or the same?
B. What was the acceleration of the lineman?
C. What was the acceleration of the running back?