NAME _____ DATE _____ PD ____

Solve each problem and show all work.

1. What net force is required to accelerate a car at a rate of 2 m/s^2 if the car has a mass of 3,000 kg?

    F=_____
    m=_____
    a= _____

2. A10 kg bowling ball would require what force to accelerate down an alleyway at a rate of 3 m/s^2 ?

    F=_____
    m=_____
    a=_____

3. Sally has a car that accelerates at 5 m/s^2 . If the car has a mass of 1000 kg, how much force does the car produce?

    F=_____
    m=_____
    a=_____

4. What is the mass of a falling rock if it produces a force of 147 N?

    F=_____
    m=_____
    a=_____

5. What is the mass of a truck if it produces a force of 14,000 N while accelerating at a rate of 5 m/s^2 ?

    F=_____
    m=_____
    a=_____

6. What is the acceleration of softball if it has a mass of 0.5 kg and hits the catcher's glove with a force of 25 N?

F=_____

m=_____

a=_____

7. Your own car has a mass of 2000 kg. If your car produces a force of 5000 N, how fast will it accelerate? F=_____

F=_____

m=_____

a=_____

8. Sally wants to accelerate even faster than in problem #3, so she removes 500 kg of mass from her car. How fast will her 1500 kg car accelerate if it produces 5000 N of force?

F=_____

m=_____

a=_____

9. Sally challenges you to a race. On the first turn you run off the course and your car strikes a large bale of hay. Your car still produces 5000 N of force, but now it accelerates at only 2 m/s^2 . What is the mass of your car now that the bale of hay is stuck to it?

F=_____

m=_____

a=_____

10. Even though she is way ahead of you, Sally switches her car to run on nitrous oxide fuel. The nitrous oxide allows her car to develop 10,000 N of force. What is Sally's acceleration if her car has a mass of 500 kg?

F=_____

m=_____

a=_____