**Basic Forces** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Construct free body diagrams for each of the following situations. Label ALL forces except those due to air resistance.**
2. **a television** **hangs on a wall** (the television that will buy for 99% off during Black Friday, or Cyber Monday…maybe even Small Business Saturday…and once you turn it on, it will be very clear to you why it was 99% off in the first place!)
3. **a shopping cart is pushed through Wal-Mart** (to snag all of those crazy Black Friday deals, which you sadly realize are all sold out once you get to where the bargains are supposed to be! This causes you to emit a few photons in the X-ray or gamma region!)
4. **a piece of apple pie is pushed along a counter in Denny’s** (the same piece of apple pie that was in the projectile motion formative assessment – sadly, it’s probably stale now! ☹ … Oh well, there’s always hash browns and plenty of Physics to hash out! ☺)
5. **a cow stands in a field before it comes home** (it will be a slow moooo-ving cow! ☺)
6. What force is required to accelerate a car at a rate of 2.0 m/s2 if the car has a mass of 3,000. kg?
7. A10. kg bowling ball would require what force to accelerate down an alleyway at a rate of 3.0 m/s2?
8. Sally has a car that accelerates at 5.0 m/s2. If the car has a mass of 1000. kg, how much force does the car produce?
9. What is the mass of a falling rock if it produces a force of 147 N?
10. What is the magnitude of the acceleration of a softball if it has a mass of 0.50 kg and hits the catcher's glove with a force of 25 N?