1 Class Handout - Linear Motion

1. Drop a rock off a cliff that is $125m$ high. Assume $g = 10\frac{m}{s^2}$.
   - How fast will the rock be traveling after one second?
   - After two seconds?
   - After three seconds?
   - How long does it take to hit the ground?
   - How fast is the rock traveling just before it hits the ground?

2. Throw a baseball straight up at $20\frac{m}{s}$. Assume $g = 10\frac{m}{s^2}$.
   - What is the acceleration at the top of its flight?
   - How long does it take to reach the top of its flight?
   - How high does it get?
   - What is the total flight time?

3. A car traveling at $30\frac{m}{s}$ hits the brakes and uniformly deceleratesto a complete stop. If it took $180m$ to come to a stop, what acceleration did it undergo during braking?

4. A cart is traveling at $2\frac{m}{s}$. The cart is then accelerated at a rate of $2\frac{m}{s^2}$ along its direction of motion for 7 seconds.

- How fast is the cart traveling after the 7 seconds?

- How far has it gone since it started accelerating?