

Final Review 2

1. A fire truck traveling at 12m/s accelerates to 30m/s in 15.0s. What is the acceleration of the fire truck?
2. A 12kg box has 20N applied to the left, at the same time 16N applied to the right. What is the direction and rate of acceleration of the box?
3. A rock falls from a bridge and takes 3.20s to hit the ground. How high was the bridge?
4. A roller coaster is traveling at 4.0m/s at the top of a 12m high hill. How fast is it going at the bottom of the hill?
5. A boy shoots a paper clip using a rubber band. The paper clip has a mass of 0.002kg and the rubberband applies 1.8N of force for 0.15s. If the paperclip starts at rest, what is the final velocity of the paperclip after the rubber band has pushed on it?
6. A 0.250kg baseball is traveling at 20m/s when a catcher catches the ball. The ball takes 0.25 seconds to stop in the catchers gloves. How much force must the glove apply to the ball to make it stop?
7. An 800kg car traveling west at 8.0m/s crashes into a 1200kg car traveling east at 14m/s. The cars get stuck together and move of at what speed and direction?
8. How many significant figures?:
 - a. 4.02×10^8
 - b. 4005
 - c. 76.000
 - d. 0.000045
 - e. 0.0070
9. Convert the following:
 - a. 450g \rightarrow Kg
 - b. 546 seconds \rightarrow minutes
 - c. 6'1" \rightarrow inches
 - d. 72 inches \rightarrow meters
10. A rock is thrown up into the air at 4.0m/s. How long will it be in the air?(how long does it take to get back down where it started?)
11. A race car traveling at 30m/s accelerates at a rate of 5.0 m/s^2 . If it accelerates for 500m, what is the final velocity of the race car?
12. How much does a 30kg girl weigh in Newtons?
13. A 2.0kg rock has 400 Joules of potential energy. How high is the rock?
14. A rocket traveling to mars takes 6 months. During the travel it turns of its engines for most of the time. What newton's law allows the rockets not to be used during its long trip?
15. A car is traveing at 10m/s and has 30,000J of kinetic energy. What is the mass of the car?
16. A student pushes a cart with a force of 40N for 15m. What is the work done on the cart?
17. An 80kg student climbs 10m up a set of stairs. She does so in 6.2s. What is the Power output of the student?
18. A 0.350kg hockey puck is sliding across the ice where the coefficient of friction is 0.100. What is the force of friction on the hockey puck?
19. If the friction acting on the hockey puck in #18 is the only force acting on the puck, what is the acceleration of the puck?
20. If the hockey puck in #18 & 19 originally was traveling at 15m/s, how long will it take to stop?