**Energy 2**

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| 27 m | 1. A 1250 Kg car going 23 m/s can coast to what elevation on a very tall hill if it loses no energy to friction? |
| 14.7 m | 2. How far will the car in the previous problem coast up the hill if it loses 150,000 J of energy to friction on the way up? |
| 16.3 m/s | 3. A 873 Kg car going 12 m/s at the top of a 6.2 m tall hill is going how fast at the bottom? (No loss to friction) |
| 10.3 m/s | 4. A 312 Kg rocket ship in deep space fires an engine that produces 516 N of thrust, for a distance of 32 m. If the rocket ship was initially at rest, what is its final velocity? |
| 10.7 m/s | 5. What is the final velocity of a .452 Kg object initially at rest if you exert a force of 6.5 N on it vertically upward for a distance of 12.5 m? |
| 11.9 m/s | 6. A 100 Kg roller coaster has a speed of 8 m/s on the top of a hill that is 6.4 m tall. What is its speed on the top of a 2.4 m tall hill? |
| 29,000 N29.6 m/s/s or 3.02 "g"s | 7. A coasting 980 Kg car going 21 m/s at the top of a 15 m tall hill is brought to rest by a crash barrier at the bottom of the hill in a distance of 12.4 m. What force did the barrier exert on the car, and what acceleration did the car undergo in stopping? |
| 5.05 m/s | 8. A 120 Kg bicyclist going 5.6 m/s at the bottom of a 2 m tall hill exerts a forward force of 200 N for 10 m as they climb the hill. What is their speed at the top of the hill? |
| 2.4 m | 9. A 150 Kg rollercoaster car is going 12 m/s at the top of a 12 m tall hill, and then rolls into the station at a height of 3 m where it is brought down to a speed of 6 m/s with a braking force of 8900 N. Over what distance must the force be exerted? |
| 5175 N | 10. A coasting 1150 Kg car going 21 m/s hits a puddle that is 13 m long. It leaves the puddle going 18 m/s. What force did the puddle exert on the car? |