# Change in potential energy worksheet 

Business, Work

## ASSIGN BUSTER

Change in Potential Energy Worksheet 1. A 7.3 kg gallon paint can is lifted 1. 78 meters vertically to a shelf. What is the change in potential energy of the paint can? 2. A roller coaster car of mass 465 kg rolls up a hill with a vertical height of 75 m from the ground. What is the change in potential energy relative to the ground? 3. If the car in problem \#2 starts at rest from the height of 75 m , what will its speed be when it is 5 meters from the ground? What is the change in potential energy relative to the ground? What is the change in kinetic energy relative to the ground? 4. The same roller coaster car in problem \#2 rolls down a vertical height of 40 m from the ground. What is the change in potential energy relative to the ground? 5 . A 783 kg elevator rises straight up 164 meters. What is the change in potential energy of the elevator relative to the ground? 6. A car coasts 62.2 meters along a hill that makes a $28.3^{\circ}$ angle with the ground. If the car's mass is 1234 kg , then what is the change in potential energy? 7. a) How fast is the bicyclist traveling when she jumps off the ramp 4 m high? b) What is the maximum vertical height the bicyclist will reach? 8. What is the highest height Tarzan can travel to given the information above? 9 . What is the jet's new velocity if it coasts to its new, lower, altitude? 10. An 80 kg trucker loads a crate as shown below. He pushes the 40 kg box such that his arms are parallel to the ground. He pushes with a 100 N force. How much work is done by the trucker on the box? 11. A 2800 kg car exerts a constant force of $20,000 \mathrm{~N}$ while traveling across 50 m . The car starts from rest. (a) How much work is done by the car? (b) How much power is exerted by the car, in watts? 12. A car 2400 kg is traveling down the road at $26.1 \mathrm{~m} / \mathrm{s}$. If the car accelerates up to $35 \mathrm{~m} / \mathrm{s}$ over a distance of 200 m then (a) How much work is done by the car?
(b) How much power is exerted by the car, in watts? 13. What is the work done over the first 12 meters? What is the power if it is done in 1 minute? 14. What is the work done over the first 24 meters? What is the power if it is done in 1 hour? 15. What is the work done over the first 32 meters? What is the power if it is done in 30 minutes? 16. What is the work done over the first 52 meters? What is the power if it is done in 1200 s? 17 . How much work is done between 32 and 52 meters? What was the change in power if it was

