

10 Ramped Gravitational Potential Energy Equation

1. A 1.5 kg laptop is lifted from the floor onto a desk 0.8 m high. Calculate the increase in gravitational potential energy.
2. A 4 kg shopping bag is carried upstairs by a vertical height of 3 m. Calculate the gain in gravitational potential energy.
3. A 12 kg bicycle is lifted onto a wall-mounted storage rack 2.2 m above the ground. Calculate the increase in gravitational potential energy.
4. A 60 kg student climbs to the top of a 5 m high climbing frame. Calculate the increase in gravitational potential energy.
5. A moving company lifts a 25 kg box into the back of a van. The box gains 1 000 J of gravitational potential energy. Calculate the vertical height it was lifted.
6. A window cleaner standing on a platform 15 m above the ground has 9 000 J of gravitational potential energy. Calculate the mass of the window cleaner.
7. A crane lifts a 350 kg steel beam onto the second floor of a building. The beam gains 28 000 J of gravitational potential energy. Calculate the height it was lifted.
8. During a charity stair climb, a participant with a mass of 80 kg gains 16 000 J of gravitational potential energy. Calculate the vertical height climbed.
9. A rollercoaster train and its passengers have a total mass of 500 kg. As the train is pulled to the top of the first hill, it gains 125 000 J of gravitational potential energy. Calculate the height of the hill.
10. A rescue helicopter lifts a 90 kg casualty from a mountainside to a point directly above the ground. The casualty gains 54 000 J of gravitational potential energy during the lift. Calculate the vertical distance they were raised.