

Use the correct formula(s) to solve each of the following acceleration problems.

1. If a 2-kg bird is pushed by the wind with a force of 2 N, how fast does the bird accelerate?
2. A roller coaster's velocity at the top of the hill is 10 m/s. Two seconds later it reaches the bottom of the hill with a velocity of 26m/s. What is the acceleration of the coaster?
3. A toy train has a mass of 1.5 kg and has an engine pushing it with a force of 30 N. What is the rate of acceleration?
4. A roller coaster is moving at 25 m/s at the bottom of a hill. Three seconds later it reaches the top of the hill moving at 10 m/s. What was the acceleration of the coaster?
5. How much force is needed to accelerate a 25-kg bowling ball at 2 m/s^2 ?
6. A satellite's original velocity is 10,000 m/s. After 60 seconds it is going 5,000 m/s. What is the acceleration?
7. How much force is needed to accelerate a 3-kg skateboard at 5 m/s^2 ?
8. How much force is on a 1,000-kg elevator accelerating at 2 m/s^2 ?
9. If a speeding train hits the brakes, and it takes the train 39 seconds to go from 54.8 m/s to 12 m/s, what is the acceleration?
10. How much force is needed to accelerate a 55-kg cart at 15 m/s^2 ?
11. A 52-kg water-skier is being pulled by a speedboat. The force causes her to accelerate at 2 m/s^2 . Calculate the force that caused this acceleration.
12. Calculate acceleration of a turtle going from 0.3 m/s to 0.7 m/s in 30 seconds.