

## **Speed, Velocity & Acceleration**

**Show all work on a separate sheet of paper!**

1. An airplane traveled 300 km northeast in 2.5 hours. Find the velocity of the plane.
2. Riding your skateboard, it takes 12 seconds to speed up from 2 m/s to 8 m/s. Find the acceleration.
3. In a skateboarding marathon, the winner covered 435 km in 36.75 h. What was the winner's average speed?
4. A hockey puck slides on the ice for 3 seconds before crossing the goal line 6 meters away. What was the average speed of the puck?
5. As a roller coaster starts down a hill, its speed is 10 m/s. Three seconds later, its speed is 32 m/s at the bottom of the hill. What is the roller coaster's acceleration?
6. A cyclist leaves home and rides for a distance of 45 km. She returns home on the same bike path. If the entire trip takes 4 h, what is her average speed?
7. A swimmer speeds up from 1.1 m/s to 1.3 m/s during the last 20 s of the workout. What is the acceleration during this interval?
8. A cyclist must travel 800 km. How many days will the trip take if the cyclist travels 8 h per day at an average speed of 16 km/h?
9. A satellite's original speed is 10 000 m/s. After one minute, it is 5000 m/s. What is the satellite's acceleration? (Hint: Convert minutes to seconds!)
10. The world's fastest passenger elevator operates at an average speed of about 10 m/s. If the 60<sup>th</sup> floor is 219 m above the first floor, how long does it take the elevator to go from the first floor to the 60<sup>th</sup> floor?