Science 10 Physics

2.3 Velocity: Uniform Motion

1. A skateboarder travels 50.0 m in 12.0 s. What is the average speed of the skateboarder?

2. A baseball player throws a ball a distance of 45.0 m at a speed of 30.0 m/s. How long is the ball in flight?

3. An airplane flies at a speed of 990 km/h for 4.10 hours. How far does the airplane travel?

4. A bird is flying 6.00 km/h in a straight line at a constant rate. How long, in hours, will the bird take to travel 30.0 km?

5. A person walks 15.0 m in 5.00 s and then walks 12.0 m in 10.00 s. What is the average speed of the person?

2.4 V_f Formulas

1. A ball traveling west at 10 m/s increases in speed to 25 m/s in 8.0 s. Find the acceleration of the ball.

2. A bowling ball traveling at 8.0 m/s [N] is accelerated by 0.50 m/s² [N] for 5.0 s. Find the final velocity of the bowling ball.

3. A car traveling 14 m/s [E] comes to a stop in 12 s. Find the acceleration of the car.

4. A marble initially travels south at 12.0 m/s. It is accelerated at -2.25 m/s² [S] for 3.50s. Find the velocity of the marble at that moment.

5. A ball is thrown upwards at 20 m/s. How much time will have passed before the ball stops rising? Remember that acceleration due to gravity is a -9.81 m/s^2 .

6. An inch worm travels west at 0.15 m/s. He encounters a patch of mud that accelerates him at a rate of -0.052 m/s^2 [W]. How much time will have passed before the mud brings him to a stop?

7. Clayton is racing for a puck. He starts from a dead stop at the boards and heads east. He allows his skating rate to increase by 6.0 m/s^2 [E] for 2.5 s. What is his final velocity?

8. Cassie drives her golf cart 15 km/h [E]. There is a massive speed bump coming so Cassie slows the cart to 5.0 km/h. If this takes her 9.7×10^{-4} hours, find the acceleration of the cart in km/h².

9. Andy kicks a soccer ball north towards the net. It leaves his foot at 18 m/s [N] and strikes the goal post 2.5 s later. If the speed of the ball was 10 m/s [N] when it struck the goal post, find the acceleration of the ball.