Acceleration Problems

1. A flowerpot falls off a second story windowsill. The flowerpot starts from rest and hits the sidewalk 1.5 s later with a velocity of 14.7 m/s. Find the average acceleration of the flowerpot.

2. Natalie accelerates her skateboard along a straight path from 0 m/s to 4.0 m/s in 2.5 s. Find her average acceleration.

3. A turtle swimming in a straight line toward shore has a speed of 0.50 m/s. After 4.0 s, its speed is 0.80 m/s. What is the turtle's average acceleration?

4. Find the average acceleration of northbound subway train that slows down from 12 m/s to 9.6 m/s in 0.8 s.

5. Marisa's car accelerates at an average rate of $2.6\ m/s^2$. Calculate how long it takes her car to accelerate from 24.6 m/s to 26.8 m/s.

6. A cyclist travels at a constant velocity of 2.3 m/s westward and continues at this velocity for 60 seconds. Then, the cyclist speeds up to a velocity of 4.5 m/s and stays at this velocity for another 60 seconds. Calculate the cyclist's acceleration.

Acceleration Problems Key

1. A flowerpot falls off a second story windowsill. The flowerpot starts from rest and hits the sidewalk 1.5 s later with a velocity of 14.7 m/s. Find the average acceleration of the flowerpot. 9.8 m/s^2

2. Natalie accelerates her skateboard along a straight path from 0 m/s to 4.0 m/s in 2.5 s. Find her average acceleration. 1.6 m/s^2

3. A turtle swimming in a straight line toward shore has a speed of 0.50 m/s. After 4.0 s, its speed is 0.80 m/s. What is the turtle's average acceleration? 0.08 m/s^2

4. Find the average acceleration of northbound subway train that slows down from 12 m/s to 9.6 m/s in 0.8 s. -3 m/s^2

5. Marisa's car accelerates at an average rate of 2.6 m/s^2. Calculate how long it takes her car to accelerate from 24.6 m/s to 26.8 m/s. 0.8 seconds

6. A cyclist travels at a constant velocity of 2.3 m/s westward and continues at this velocity for 60 seconds. Then, the cyclist speeds up to a velocity of 4.5 m/s and stays at this velocity for another 60 seconds. Calculate the cyclist's acceleration. 0.02 m/s^2