

1. During a race on level ground, Andra covers 825 m in 137 s while running due west. Find Andra's average velocity and direction.
2. Heather and Matthew take 34 min to walk eastward along a straight road to a store 2.0 km away. What is their average velocity in m/s and direction?
3. Eugene is 75.0 km due south of Salem. If Joe rides from Salem to Eugene on his bike in 6.00 h, what is his average velocity in m/s and direction?
4. If the bus stop is 0.68 km down the street from the museum and it takes you 9.5 min to walk north from the bus stop to the museum entrance, what is your average velocity and direction?
5. Simpson drives his car with an average velocity of 24 m/s toward the east. How long will it take him to drive 560 km on a perfectly straight highway?
6. How much time would Simpson save by increasing his average velocity to 26 m/s east?
7. A bus traveled south along a straight path for 3.2 h with an average velocity of 88 km/h, stopped for 20.0 min, then traveled south for 2.8 h with an average velocity of 75 km/h. a) What is the average velocity for the total trip? b) What is the displacement for the total trip?
8. A child can push a shopping cart at a speed of 1.5 m/s. How long would it take this child to push the cart down an aisle with a length of 9.3 m?
9. When the shuttle bus comes to a sudden stop to avoid hitting a dog, it slows from 9.00 m/s to 0.00 m/s in 1.50 s. Find the average acceleration of the bus.
10. Turner's treadmill starts with a velocity of  $-1.2$  m/s and speeds up at regular intervals during a half-hour workout. After 25 min, the treadmill has a velocity of  $-6.5$  m/s. What is the average acceleration of the treadmill during this period?
11. If a treadmill starts at a velocity of  $-2.7$  m/s and has a velocity of  $-1.3$  m/s after 5.0 min, what is the average acceleration of the treadmill?
12. With an average acceleration of  $-0.50$  m/s<sup>2</sup>, how long will it take a cyclist to bring a bicycle with an initial velocity of  $+13.5$  m/s to a complete stop?
13. A caterpillar crawling up a leaf slows from 0.75 cm/s to 0.50 cm/s at a rate of  $-0.05$  cm/s<sup>2</sup>. How long does it take the caterpillar to make the change?