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1. The earth rotates through one complete revolution every 24 hours. Since the axis of rotation is perpendicular to the equator, you can think of a person standing on the equator as standing on the edge of a disc that is rotating through one complete revolution every 24 hours. Find the angular velocity of a person on the equator.
  2. Assuming the radius of the earth is 4000 miles, find the linear velocity of a person standing on the equator.
  3. A gasoline driven lawnmower has a blade that extends out 1 foot from its center. The tip of the blade is traveling at the speed of sound, which is 1100 feet per second. Through how many revolutions per minute is the blade turning?
  4. The Cleveland City Cable Railway had a 14-foot-diameter pulley to drive the cable. In order to keep the cable cars moving at a linear velocity of 12 mph, how fast would the pulley need to turn (in revolutions per minute)?