

**W1.00**

## **Linear Motion Problems**

(9/9/04)

1. A high school girl who is an average runner completes a 100-m dash by running twice around an indoor circular track that is 50 m in circumference. Estimate her average speed and average velocity.
2. If it takes an airplane 2 h and 30 min to fly 1200 air miles from Minneapolis-St. Paul to New York City, what is the average speed of the plane in mi/h? In m/s?
3. In a television tube, electrons are emitted from an electrode at one end of the tube and strike a light-emitting coating on the picture screen at the other end of the tube. If the electrons are emitted with a velocity of  $1.25 \times 10^8$  m/s, how long does it take the electrons to hit the screen 16.7 cm away?
4. During a video game, a point on the screen moved 9.6 cm in the positive y direction and then 3.6 cm in the negative x direction, all in a time of 3.9 s.
  - a. What was the point's average velocity during this time? (magnitude only)
  - b. What was its average speed?