

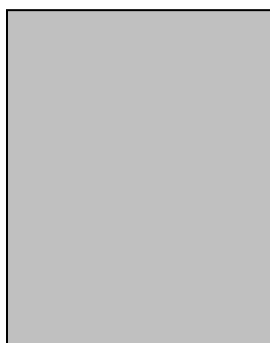
Chapter 6.1 Intro to Momentum Lecture Worksheet

Example Problem



The world's most massive train ran in South Africa in 1989. Over 7 km long, the train traveled 861.0 km in 22.67 h (81,612 s). Imagine that the distance was traveled in a straight line north. If the train's average momentum was $7.32 \times 10^8 \text{ kg}\cdot\text{m/s}$ to the north, what was its mass?

Solution



Additional Practice

1. In 1987, Marisa Canofoglia, of Italy, roller-skated at a record-setting speed of 11.19 m/s. If the magnitude of Canofoglia's momentum was $6.60 \times 10^2 \text{ kg}\cdot\text{m/s}$, what was her mass?

2. One of the smallest planes ever flown was the *Bumble Bee II*, which had a mass of $1.80 \times 10^2 \text{ kg}$. If the pilot's mass was $7.0 \times 10^1 \text{ kg}$, what was the velocity of both plane and pilot if their momentum was $2.08 \times 10^4 \text{ kg}\cdot\text{m/s}$ to the west?



3. The first human-made satellite, *Sputnik I*, had a mass of 83.6 kg and a momentum with a magnitude of $6.63 \times 10^5 \text{ kg}\cdot\text{m/s}$. What was the satellite's speed?

