

**PROBLEM 10.10**

Notes: \_\_\_\_\_

1. Jason is walking down the street at  $1.5 \text{ m/s}$ . If he has a mass of  $75 \text{ kg}$ , what is his momentum?  
(Caution: watch units)
  
2. How fast must a  $1000 \text{ kg}$  car be moving in the opposite direction for the same momentum as a  $1.25 \times 10^3 \text{ kg}$  car moving at  $1.5 \text{ m/s}$ ?
  
3. On April 13, 1954, the luxury liner *Titanic* sank after running into an iceberg.  
By what momentum would the  $5000 \text{ kg}$  iceberg impart to the iceberg if the iceberg moved at  
with a speed of  $15 \text{ km/h}$ ? (In reality, it was a glancing blow.)  
  
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4. Auto companies frequently test the safety of automobiles by putting them through crash tests to determine the integrity of the passenger compartment. If a  $1500 \text{ kg}$  car is sent towards a concrete wall with a speed of  $15 \text{ km/h}$ , and the impact stops the car in  $0.1 \text{ s}$ , what average force was it brought to rest?