Chapter 7: Momentum Worksheet 1
C. P. Physics
Mr. Wiatrowski –

NAME: _____Period: _____ Date: _____

Show your work

Use correct units, significant digits, scientific notation:

1. A tennis ball traveling at 10.0 m/s is returned by Venus. It leaves her racket with a speed of 36.0 m/s in the opposite direction from which it came. a) what is the change in momentum of the tennis ball? b) If the 0.060-kg ball is in contact with the racket for 0.020 s, with what average force has Venus hit the ball?

a.

Looking for	Solution
Given	
Relationships	

b.

Looking for	Solution
Given	
Relationships	

2. On April 15, 1912, the luxury cruiseliner *Titanic* sank after running into an iceberg. a) What momentum would a 4.23 X 10^8 – kg ship have imparted to the iceberg if it had hit the iceberg head-on with a speed of 11.6 m/s? b) If the captain of the ship had seen the iceberg a kilometer ahead and tried to slow down, why would this have been a futile effort?

a.

Looking for	Solution
Given	
Relationships	

b. (find the force required to stop the boat, F=ma)

Looking for	Solution
Given	
Relationships	

3. If 310 million people in the United States jumped up in the air simultaneously, pushing the Earth with an average force of 800. N each for a time of 0.10s, what would happen to the 5.98 X 10^{24} kg Earth? Show a calculation that justifies your answer. (solve for v)

Looking for	Solution
Given	
Relationships	

4. A 8.0-kg blob of clay moving horizontally at 2.0 m/s hits a 4.0-kg blob of clay at rest. What is the speed of the two blobs stuck together immediately after the collision?

Looking for	Solution
Given	
Relationships	

5. An 80-kg cart moving at 70 km/h collides head-on with an approaching 120-kg cart moving at 40 km/h (in the opposite direction). If the two carts stick together, what will be their speed?

Looking for	Solution
Given	
Relationships	

6. A 30-kg girl and a 25-kg boy face each other on friction-free roller skates. The girl pushes the boy, who moves away at a speed of 2.0 m/s What is the girl's speed?

Looking for	Solution
Given	
Relationships	

7. A 10-kg cement block moving horizontally at 2.0 m/s plows into a pillow and comes to a stop in 0.5 s. What is the average impact force on the pillow?

Looking for	Solution
Given	
Relationships	