Sprayberry Physics: Impulse and Momentum Worksheet

Name:_____

Directions: Use your notes, your book and a (single) partner. This is due at the end of the class. These start easy and build to more difficult.

1. What is the definition of momentum? _____ times _____.
2. Is momentum a vector or scalar? _____ Therefore, it has (magnitude only OR magnitude and direction).
3. If an objects velocity is to the northwest, its momentum will be to the _____
4. If two objects collide, their momentum must be conserved. This means that (circle) **the faster object's the slower object's both objects' the total** momentum must remain constant (the same). If Omari is skating with 100 kg•m/s and runs into Meaghan, who is skating in the same direction with 80 kg•m/s, what is the total momentum before they collide? _____ What is the total momentum after they collide? _____ Do we know what Omari's momentum is after they collide? _____ Do we know what Meaghan's momentum is after they collide? _____
5. If two objects collide, their momentum must be conserved. This means that (circle) **the faster object's the slower object's both objects' the total** momentum must remain constant (the same). If Aney is skating with 100 kg•m/s and runs into Sam, who is skating in the **opposite direction** with 80 kg•m/s, what is the total momentum before they collide? _____ What is the total momentum after they collide? _____ Do we know what Aney's momentum is after they collide? _____ Do we know what Sam's momentum is after they collide? _____
6. Draw the magic triangle for momentum.
7. Draw the magic triangle for impulse. Be sure to include delta, avg, initial, or final as appropriate. Note: it is NOT "just" momentum.

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Problem

8. If a 21 kg car is rolling without friction to the west with a speed of 16 m/s, what is its momentum?

9. If a 48 kg bike is rolling without friction to the northeast with a speed of 8 m/s, what is its momentum?