Momentum Practice Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_A

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| Dimension | Variable | StandardInternationalUnit | Definition |
| Mass |  |   |   |
| Velocity |  |   |  |
| Momentum |  |   |   |
| Impulse |  |  |  |

Momentum Formula: Impulse Formula:



mcar = 2000 kg

mperson= 35 kg

1. Find the momentum of the car with two people inside if it is
	1. travelling at 20 m/s.
	2. travelling at 40 m/s.
2. What is the momentum of just one person at the speeds listed in #1.
3. What are the two variables that determine momentum?
4. Use the momentum, mass and velocity of 1. a. answer the following:
	1. What is the impulse on the car if it comes to a stop?
	2. What is the force on the car comes to a stop in 0.34 seconds?
5. What is the best way to reduce the forces on people in car crashes?

**Basic momentum calculations**

1. What is the momentum of a 0.06 kg egg if it is at rest?
2. What is the momentum of a 0.06 kg egg if it is moving at 10 m/s?
3. What is the velocity of a 0.06 kg egg if its momentum is 1.2 kg m/s?
4. Find the mass of a ball that is moving at 74 m/s if it’s momentum is 37 kg m/s.
5. A 5 kg crate’s momentum increases from 35 kg m/s to 55 kg m/s.
	1. What is the crate’s starting velocity?
	2. What is the crate’s ending velocity?
	3. What is the impulse on the crate during the change in momentum?
	4. What Force was applied if the crate changed momentum in 3 seconds?
6. Two bullets have the same momentum. If their mass is the same, how do their velocities compare?
7. If a car’s momentum is 56,000 kg m/s in the positive direction, what is the direction of the car’s velocity? Why?