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| **PH 201 Pre-Lab 11** | **Conservation of Momentum** | **Name** |  |

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| In this week’s lab we are going to examine conservation of momentum.  |
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| 1. Under what conditions is linear momentum conserved? |
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| 2. A cart with a mass of 0.495 kg is traveling to the right with a velocity of 1.43 m/s. What is the magnitude and direction of the linear momentum for this cart? |
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| $$\vec{p}=$$ |  |

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| 3. Two carts A and B crash. Their total linear momentum is found to be 0.710 kg m/s to the left. One cart (B) is brought to rest. The other (A) moves off after the crash. If the velocity of cart (A) is 1.42 m/s to the left, what is the mass of cart (A)? |
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| $$m=$$ |  |

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| 4. A cart has a mass of 1.100 kg and is moving with a speed of 0.850 m/s, what kinetic energy does it possess? |
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| $$K=$$ |  |

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| Mass A is moving to the right with a speed of 0.95 m/s and has a mass of 0.500 kg. Mass B is at rest and has a mass of 1.00 kg. After the collision mass B moves off with a speed of 0.635 m/s to the right. |
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| 5. What is the magnitude and direction of the speed of mass A after the collision? |
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| $$\vec{v\_{Af}}=$$ |  |

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| 6. What is the kinetic energy of the two carts before the collision? |
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| $$K\_{Before}=$$ |  |

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| 7. What is the kinetic energy of the two carts after the collision? |
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| $$K\_{After}=$$ |  |

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