## Physics 30 Worksheet \# 1: Momentum

1. Calculate the momentum of a $1.60 \times 10^{3} \mathrm{~kg}$ car traveling at $20.0 \mathrm{~m} / \mathrm{s}$.
2. Calculate the momentum of a $2.50 \times 10^{3} \mathrm{~kg}$ truck traveling at $110 \mathrm{~km} / \mathrm{h}$.
3. How fast is a 1.50 kg ball moving if it has a momentum of $4.50 \mathrm{~kg} . \mathrm{m} / \mathrm{s}$ ?
4. A 75.0 g ball is rolling at a speed of $57.0 \mathrm{~cm} / \mathrm{s}$. Calculate the ball's momentum.
5. A 5.00 kg ball accelerates at a rate of $2.00 \mathrm{~m} / \mathrm{s}^{2}$ for 1.50 seconds. Calculate the ball's momentum after the acceleration.
6. A 2.00 kg rock is dropped from the top of a 30.0 m high building. Calculate the ball's momentum at the time that it strikes the ground.
7. A 1.00 kg rock is thrown up into the air from ground level at a speed of $8.00 \mathrm{~m} / \mathrm{s}$. The ball travels up to a maximum height, then returns to the ground. Calculate the rock's momentum as it strikes the ground.
8. A 1.50 kg rock is thrown up into the air from ground level, reaches a maximum height of 7.00 m , then returns to the ground. Calculate the rock's momentum as it strikes the ground.
