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| **PH 201 Post-Lab 04** | **2 Dimensional Motion** | **Name** |  |

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| 1. A ball gun uses a spring to accelerate the steel ball from rest to a speed of 6.30 m/s. The spring provides the acceleration over a distance of approximately 7.00 x 10-2 m. What is the acceleration provided by the spring? |
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| 2. If the ball is launched horizontally 0.90 m above the floor, how long will it take to hit the floor? |
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| 3. How far horizontally will the ball travel when launched horizontally assuming the muzzle velocity is 6.30 m/s and the ball is in the air for 0.525 s before it hits the ground. |
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| 4. If the ball is now launched at a 35.0° angle above the horizontal and this places the ball at 1.20 m above the floor, how long is the ball in the air before striking the floor? Initial velocity is still 6.30 m/s. |
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| 5. What is the final horizontal speed just before the ball touches the ground? Initial velocity is still 6.30 m/s, launch angle is still 35.0°, and use a time in the air of 0.990 s. |
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