MA205 - Integral Calculus
Lesson 13: Arclength I

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1. Let's test out our formula for arc length. What is the length of half of a circular arc of radius one? Does this coincide with the arclength formula? (You'll need technology for this one. In fact, you will need technology for most arc length problems.)

2. If a particle travels along a cosine curve for one cycle, how far has it traveled?

3. A potato has been fired at an angle and its position function follows the parabola $y = -0.0032x^2 + x$, where x and y are measured in feet. What is the length of its flight path?

4. Another potato has been fired! This time, a bystander says "a potato has been fired straight into the air." Using Newtonian physics and the fact that its time of flight is exactly 6.25 seconds, you determine that the potato has a velocity function $v(t) = -32t + 100$ ft/sec. What is the length of its flight path?