UMass Boston **Physics 181**

The Conservation of Momentum in Two-Dimensions

Pre-lab Test (10 Points)

Print Name _____

Lab Section _____ **Date**_____**TA**_____

This Pre-lab is due when you come in to do the experiment. Show formulas and results as specified below, but you should use Excel to perform the numerical calculations. Enter your momentum using the measured units, i.e., grams, centimeters and seconds.

Find the sum of the following vectors graphically and algebraically (It may be necessary to convert the polar coordinates to Cartesian coordinates). Sketch the graph below. Present your algebraic result in polar form to a precision of one decimal place for both magnitude and angle.

$\vec{p}_{1,i} = (545\ {}^{g\ cm}/_{s}, 44.0°)$; $\vec{p}_{2,i} = (271\ {}^{g\ cm}/_{s}, 136.0°)$

$\vec{p}_{i,total}$ (,)