Worksheet 5: Force Table, Parts C & D

Name: _____ **Due October 9, 2024**

Partner: _____ Pencil only: use of Pen is forbidden.

Part C: Draw vectors $\vec{F}_1$ and $\vec{F}_2$ "head to tail" in your notebook (i.e., not both starting in the middle!)

Recall 1 cm = 50 g

Recall that $F_{1x} = -195$ g, $F_{1y} = -530$ g
$F_{2x} = +380$ g, $F_{2y} = +140$ g

- Into what quadrant does $\vec{F}_1$ point? _____ Computation of F_1 from givens: _____ cm

Unit Conversion: corresponding m_1: _____ g Computation of θ_{F1} from givens: _____ °

- Into what quadrant does $\vec{F}_2$ point? _____ Computation of F_2 from givens: _____ cm

Unit Conversion: corresponding m_2: _____ g Computation of θ_{F2} from givens: _____ °

Add vector $\vec{F}_3$ to your logbook drawing, such that $\vec{F}_1 + \vec{F}_2 + \vec{F}_3$ forms a closed triangle.

- Into what quadrant does $\vec{F}_3$ point? _____ Measurement of F_3 with ruler: _____ cm

Unit Conversion: corresponding m_3: _____ g Measurement of θ_{F3} with protractor: _____ °

Computation of F_{3x} from F_3, θ_{F3}: _____ cm Computation of F_{3y} from F_3, θ_{F3}: _____ cm

- On a new page in your logbook, redraw $\vec{F}_1$, $\vec{F}_2$, and $\vec{F}_3$ so that they now all start at the origin.
- Add masses m_1, m_2, m_3 to the force table.

Discuss: How well balanced is the ring? When you look at the force table from above, how does it compare to your logbook diagram?

_____

_____

_____

- Your first diagram showed $\vec{F}_1 + \vec{F}_2 + \vec{F}_3$ "head to tail". Make a new "head to tail" drawing, in the order $\vec{F}_2 + \vec{F}_1 + \vec{F}_3$.

Part D: Individual Skill Test. This is similar to part C. You will be graded only on your computation of m_3 and θ_3.
Note that the magnitudes are *already* in grams, so there's no good reason to convert to cm.
Ask Dr. Pogo for the following values:

Skill Test # _____ Tries: _____ Correct Try #: _____

m_1: _____ g θ_1: _____ °

m_2: _____ g θ_2: _____ °

Your Results:

m_3: _____ g θ_3: _____ °