Worksheet 4: Force Table, Parts A & B

Name: _____ **Due March 5, 2026**

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

Part A: Your logbook already has very accurate drawings of vectors $\vec{A}$, $\vec{B}$, and $\vec{C}$. Recall notation: $A \equiv \left|\vec{A}\right|$.

- Into what quadrant does $\vec{A}$ point? _____ ($\vec{A} = +6\text{ cm}\ \hat{x} - 9\text{ cm}\ \hat{y}$)

Measurement of A with ruler: _____ cm Measurement of θ_A with protractor: _____ °

Computation of A from givens: _____ cm Computation of θ_A from givens: _____ °

- Into what quadrant does $\vec{B}$ point? _____ ($\vec{B} = -8\text{ cm}\ \hat{x} + 6\text{ cm}\ \hat{y}$)

Measurement of B with ruler: _____ cm Measurement of θ_B with protractor: _____ °

Computation of B from givens: _____ cm Computation of θ_B from givens: _____ °

- Into what quadrant does $\vec{C}$ point? _____ ($\vec{C} = 12\text{ cm}$ at an angle of 235°)

Measurement of C_x with ruler: _____ cm Measurement of C_y with ruler: _____ cm

Computation of C_x from givens: _____ cm Computation of C_y from givens: _____ cm

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Part B: The lab manual has very accurate drawings of vectors $\vec{F}_1$ and $\vec{F}_2$. Recall notation: $F_1 \equiv \left|\vec{F}_1\right|$.

- Into what quadrant does $\vec{F}_1$ point? _____ Into what quadrant does $\vec{F}_2$ point? _____

Measurement of F_1 with ruler: _____ cm Measurement of F_2 with ruler: _____ cm

Measurement of θ_{F1} with protractor: _____ ° Measurement of θ_{F2} with protractor: _____ °

Computation of F_{1x} from F_1, θ_{F1}: _____ cm Computation of F_{2x} from F_2, θ_{F2}: _____ cm

Computation of F_{1y} from F_1, θ_{F1}: _____ cm Computation of F_{2y} from F_2, θ_{F2}: _____ cm

Unit Conversion: corresponding m_1: _____ g Unit Conversion: corresponding m_2: _____ g

Trial and Error: m_3 to reach balance: _____ g Trial and Error: θ_3 to reach balance: _____ °

Computation of F_{3x} from F_{1x}, F_{2x}: _____ cm Computation of F_{3y} from F_{1y}, F_{2y}: _____ cm

Computation of F_3 from F_{3x}, F_{3y}: _____ cm Computation of θ_3 from F_{3x}, F_{3y}: _____ °

Unit Conversion: corresponding m_3: _____ g

Unit Conversion: $F_{3x} \rightarrow m_{3x}$: _____ g Unit Conversion: $F_{3y} \rightarrow m_{3y}$: _____ g

Discuss: Assume that uncertainties using the ruler are about ±0.5 mm, and for the protractor are about ±0.5°.
Discuss the overall patterns of agreement for quantities for which you now have two values:

_____

_____

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_____

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