Name_____

Physics 111 Quiz #1, September 8, 2025

Please show all work, thoughts and/or reasoning to receive partial credit. The quiz is worth 10 points total, and all parts may not be of equal weight.

I affirm that I have carried out my academic endeavors with full academic honesty.

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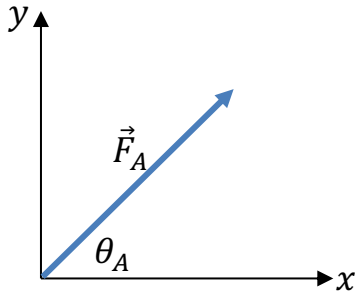
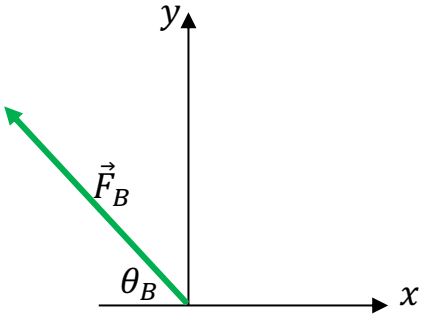
1. Suppose you have the vector $\vec{F}_A$ shown below. The vector has magnitude $|\vec{F}_A| = 10N$ and points at an angle $\theta_A = 30^0$ measured with respect to the positive x-axis. What are the x- and y-components of vector $\vec{F}_A$?



2. Suppose you have the vector $\vec{F}_B$ shown below. The vector has magnitude $|\vec{F}_B| = 10N$ and points at an angle $\theta_A = 40^0$ measured with respect to the negative x-axis. What are the x- and y-components of vector $\vec{F}_B$?



3. Suppose that vector $\vec{F}_C = \vec{F}_A + \vec{F}_B$. What is the magnitude of vector $\vec{F}_C$?

4. With respect to the positive x-axis, at what angle does vector $\vec{F}_C$ make?

5. Suppose that you have the following situation. A block of mass m and charge -Q (assumed to be point-like) is held at rest on the frictionless inclined plane as shown below. A second point-charge of mass m and charge $+Q$ is placed at the bottom of the incline. On the diagram below, label the forces that act on point-charge -Q located on the ramp. The magnitudes do not have to be drawn to scale, but the directions need to be accurate to earn full credit.