

- This quiz is for you to display your personal understanding of program material
 - You may use a single 3 inch by 5 inch note card and a calculator
 - **Show/explain all work/reasoning.** You will be evaluated on clarity/completeness of process, not simply on answer
 - The quiz begins at 9:00 and ends promptly at 9:30
- 1) [8 points total] A 12 kg box accelerates at a rate of 2.0 m/s^2 in a direction 60° counterclockwise from the x axis. Two forces act on this box. One has a magnitude of 12 N and points in the $+y$ direction. What is the other force? (You may specify the force either by its components F_x and F_y or as a magnitude F and direction θ measured counterclockwise from the x axis.)
- 2) [4 points total] A force $\vec{F} = -1.0 \text{ N } \hat{i} + 3.0 \text{ N } \hat{j}$ acts on an object as it moves in a straight line from the origin to the location $(-3.0 \text{ m}, -4.0 \text{ m})$. What is the work done by this force?

- 3) [8 points] A box slides on a floor with an initial speed of 6.0 m/s. If it comes to rest after 3.0 seconds, what is the coefficient of kinetic friction μ_k ?