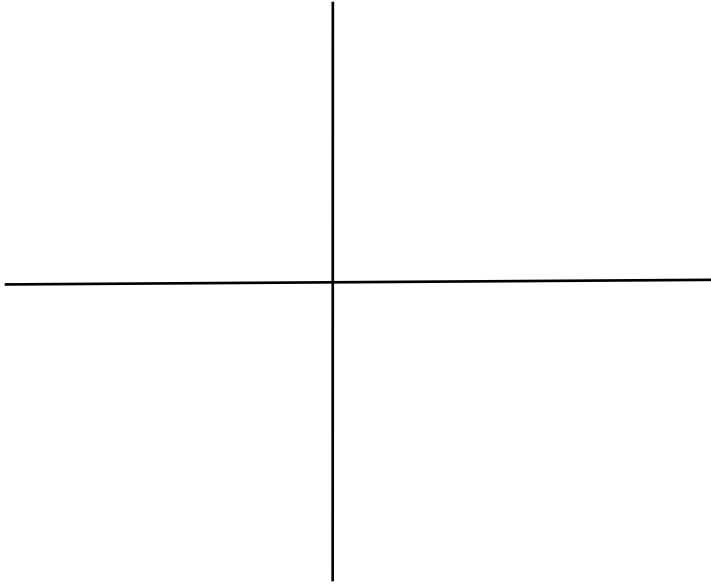# P h y s i c s

name _____ period ____

Inv-7 Expan II: Newton's 2nd and FBDs (Part 2)
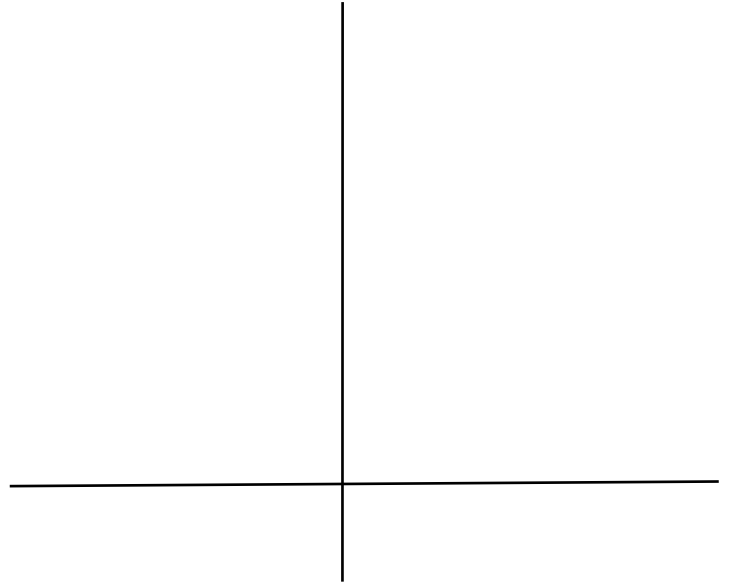
Stamp Due Date: _____   sheet #____

1.) Draw the FBD showing the forces on a rowboat being towed by a big ship at 10 knots. The rope from the big ship to the rowboat makes an angle of 35° with the horizontal

2.) A tennis ball is contact with the tennis court as it is at maximum temporary compression and getting ready to reform to its original shape

$\sum Fx =$ _____ = _____

$\sum Fy =$ _____ = _____

$\sum Fy =$ _____ = _____

3a.) A helium balloon 40 feet above the ground has a pin hole leak in it. It is rising at a constant rate of 20mph and an angle of 20° ALH. There is a wind blowing from east to west at 10mph. Draw the FBD in the head to tail method. Show the DOM and write the x and y equations.
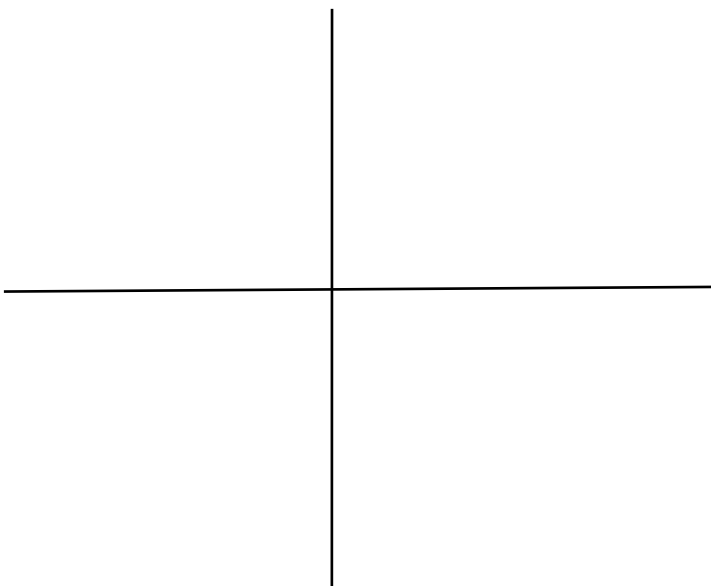
3b.) Now redraw the FBD of the same leaking helium balloon from part A, but this time show all the forces eminating from the center of mass.

$\sum Fx =$ _____ = _____

$\sum Fy =$ _____ = _____