

## Big Exam #1

Imagine you jump horizontally (northward) off the side of a small boat by pushing with your legs.

- a) Describe as completely as possible what the boat does during this process.
  - i) Make a drawing
  - ii) What lens did you use?
  - iii) Support the use of that lens
  - iv) Apply the lens: What does the boat do?
  
- b) Let's say you have a mass of 50 kg, the boat has a mass of 150 kg and you have a velocity of 6 m/s, horizontally after you push off (lasting 0.3 s). What's the speed of the boat?
  - i) What lens did you use?
  - ii) Support the use of that lens
  - iii) Apply the lens and find the speed
  
- c) What was the average force from your legs on the boat?
  - i) What lens did you use?
  - ii) Support the use of the lens.
  - iii) Apply the lens and find the force.
  
- d) What was the average acceleration of the boat? ... follow the 3 steps in "c" above.
  
- e) About how much work did I do in this process?... follow the 3 steps in "c" above.

Your name \_\_\_\_\_