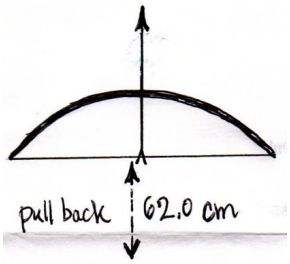
General Physics I **Recitation Quiz - Forces, Energy Conservation** **Oct. 13, 2009**

Name:

For full credit, make your work clear. Don't forget to show the formulas you use, all the essential steps, and results with correct units and correct number of significant figures. Use $g = 9.80$ m/s^2.

1. A bow used to shoot an arrow requires an applied force of 225 N to pull the bowstring back 62.0 cm from its relaxed position. The bow and string act like a spring; the force produced follows Hooke's law. The bow is used to shoot a 145-gram arrow straight up in the air. Ignore friction.



a) (6) When the bowstring is drawn back 62.0 cm, how much potential energy is stored in the bow and string?

b) (4) The bowstring is released from 62.0 cm. To what maximum height will it shoot the 145-gram arrow (measured above the point where the archer lets go)?

c) (2) Just after the archer lets go of the arrow, the magnitude of the net force on the arrow is

a. 225 N. b. less than 225 N c. greater than 225 N.