Homework assigned Monday, March 27.

For an example of a problem like these, see the solution to Quiz 25 on the class web page.

Problem 1. The wood of white spruce crushes at 37,818 lbs/ft^2. Assume that a white spruce of height 8 ft weighs 280 lbs and the diameter of its base is .7 ft.

(a) Give a formula for $D(h)$, the diameter of the base of a white spruce of height h ft. *Answer:* $.085h$ ft.

(b) Give a formula for $W(h)$, the weight of a white spruce of height h ft^3. *Answer:* $.546875h^3$.

(c) What is the area of the base of a white spruce of height h ft? *Answer:* $.00601319h^2$ ft^2.

(d) What is pressure on the base of a white spruce of height h ft? *Answer:* $90.945h$ lbs/in^2.

(e) How large can a white spruce get before it crushes itself under its own weight? *Answer:* 415.83 ft.