

11am

## Quiz 6

Fall 2012

**Your name:** \_\_\_\_\_

Math 0220

**Your TA's name:** \_\_\_\_\_

No calculators, no notes, no books. Show all your work (no work = no credit). Write neatly. Simplify your answers.

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1. [5 points] Use logarithmic differentiation to find  $y'$  if  $y = (\sin x)^x$ .

2. [5 points] The half-life of cesium-137 is 30 years. If you have a 200-mg sample how much of the sample remains after 75 years? Simplify your answer. Leave only radicals in it (no logarithms, no exponents).

bonus problem [5 points extra] Solve the equation  $3^{2^x} = 2^{3^x}$ . Leave logarithms in your answer.

