# Quiz 4

Spring 2013 **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.

1. [5 points] Use differentials to estimate the amount of paint needed to apply a coat of paint 0.03 cm thick to a hemispherical dome of the radius 20m.

2. [5 points] A sample of tritium-3 decayed to 94.5% of its original amount after one year. What is the half-life of tritium-3? Leave ln in your answer.

bonus problem [5 points extra] Simplify the expression $\sin(\cot^{-1} x)$.