Math 120E Autumn 2002 **Name:** _____

Quiz #7

Quiz Section: _____

SHOW YOUR WORK

The technicians at Hanford put 20 grams of plutonium-238 in Vat #231 back in 1984. In 1990, a clean up crew checked the vat and found that 19 grams of plutonium-238 remained. This is because radioactive materials decay exponentially with time. The crew closed the vat again and left it alone.

1. (4 points) Find an exponential function $y = Ab^t$ that gives the amount y of plutonium-238, in grams, as a function of the year t. Take $t = 0$ in 1984.

2. (3 points) How much plutonium-238 was left in the vat in 1996?

3. (3 points) In what year will there only be 5 grams of plutonium-238 left?