Quiz 4    Algebra & Trig    4/2/2003

Each problem is worth 5 points. For full credit provide complete justification for your answers.

1. [Based on Barnett, Ziegler, and Byleen p. 365 #63] The use of the insecticide DDT is no longer allowed in many countries because of its long-term adverse effects. If a farmer used 25 pounds of active DDT, assuming its half-life is 12 years, how much will still be active after:

   (A) 5 years  \[ A = 25 \left( \frac{1}{2} \right)^{t/12} \]

   (B) 35 years  \[ A = 25 \left( \frac{1}{2} \right)^{t/12} \]

   (Round answers to 2 decimal places)

   \[ \text{18.73 pounds} \]

   \[ \text{3.31 pounds} \]

2. If the present population of Nigeria is 104 million people, and the population is expected to double every 23 years, what will the population be after:

   (A) 10 years  \[ P = 104 \left( 2 \right)^{t/23} \]

   (B) 50 years  \[ P = 104 \left( 2 \right)^{t/23} \]

   (Round answers to the nearest whole number)

   \[ \text{141 million} \]

   \[ \text{469 million} \]