Solving Exponential Word Problems Name: _____ A#___

Problem	Solve Algebraically	Solve Graphically (sketch)
1. **CP ONLY** A family of four spent $200.00 a week on groceries in 2001. When will the weekly grocery bill for a family of four be $250.00 if the cost of living increases by 3% per year?		
2. **CP ONLY** A car loses 15% of its value per year. After how many years will a $28,000 car be worth $6,600?		
3. Dandelions are taking over many manicured lawns. The population has been growing at a rate of 5.9% per year. One neighborhood counted 600 dandelion plants this summer. How many years will it be before the dandelion population in that neighborhood reaches 1000?		
4. How many years will it take for an initial investment of $25000 to grow to $80000? Assume a rate of interest of 7% compounded continuously.		
5. A sum of $1500 was invested for 5 years, and the interest was compounded continuously. If this sum amounted to $1633 in the given time, what was the interest rate?		
6. If Tanisha has $100 to invest at an annual interest rate of 8% compounded monthly, how long will it be before she has $150?		

7. The half-life of a drug is eight minutes. If a person ingests 512 mg of the drug, how long will it take for only 1 mg to remain?		
8. If Tanisha instead invested her $100 into an account that compounded continuously at 8% annually. How long will it be before she has $150?		
9. Brad invested $2300 in a corporate bond that pays 14% annual interest compounded continuously. How long will it take for Brad's investment to triple?		
10. The size of a termite population at time t (in days) obeys the equation $P = 500e^{0.02t}$. After how many days will the population reach 2000?		
11. **HN ONLY** In 1990, the deer population on Anticosti Island was estimated at 70,000. If this population doubles every 50 years, in what year will there be 100,000 deer?		
12. **HN ONLY** The local government projects that the town will grow at a constant rate of twelve percent per year. At this rate, how many years will take the town's population to double?		