Exponentials Homework

1. Ms. Martin drives a white Jetta (with black interior!). She bought her car for $10,750 (let's pretend). It depreciates at a rate of 10.7% per year.

   a. Write an equation to describe the situation.

   b. How much will it be worth ten years from now?

2. City Bank pays a simple interest rate of 3% per year, meaning that each year the balance increases by 3% of the initial deposit. National Bank pays a compound interest rate of 2.6% per year, compounded monthly.

   a. Write an equation for C(t), the City Bank balance, *t* years after a deposit is left in the account. Write an equation for N(t), the National Bank balance, *t* years after a deposit is left in the account.

   b. Which bank will provide the largest balance if you plan to invest $10,000 for 10 years? For 15 years?

Exponent Rules, continued

Do not use a calculator on this portion. Show your work.

3. $3^x = 3^2$

4. $4^x = 64$

5. $2^x = 32$

6. $7^x = 7^{2x+7}$

7. $6^{3x} = 6^{2x+1}$

8. $5^{x-1} = 25$

9. $4^{x-5} = 16$

10. $3^x = 9^{x+1}$

Challenge: $27^x = 9^{x+3}$