WS: Modeling Exponential Growth/Decay Name _____

Use the formula $y = a(1 \pm r)^t$ to model the word problem. Show set up. Period ____
Answer the question asked. Use words (and numbers). Show work where needed.

1) Twelve years ago the number of bald eagles in the wild in America was 450. Since then, their population has increased by 3% per year. How many bald eagles are there now?

2) A rare baseball card is worth $2000 today. It has increased in value by 6.25% per year. How much was it worth when you bought it 5 years ago?

3) Your mother inherited an antique grandfather's clock from her Uncle. He paid $200 for it 50 years ago. It was appraised for $3400 today. What was the interest rate per year on average?

4) You buy a new computer for $1500. It depreciates in value by 12% every month. How much is it worth after 15 months?

5) A culture of bacteria grows by 8% every hour. If you started with 150 bacteria cells, how many bacteria cells would you have after 24 hours?

6) A zombie virus outbreak has struck the world. If 25,000 people were originally infected and the zombie population is now 200,000 zombies after 14 days, what is the rate of increase?

If the rate of increase remains constant how many zombies would there be after 30 days (use the original value of 25,000 zombies)? Move the decimal where it goes. Put commas in the number.