Math 2 Name: _____

Exponential Growth/Decay Worksheet

Answer the following questions about the exponential decay problems.

A new 2006 Honda Accord was valued at $25000. It depreciates at a rate of 13% a year.

1. What was its value in 2009?

2. What will be its value in 2020?

The amount of a certain drug in the bloodstream decreases by 30% in 1 hours. A person takes 125 mg of the drug.

3. What is the concentration of the drug in the bloodstream after 3 hours?

4. What is the concentration of the drug in the bloodstream after 1 day?

Do the following situations model exponential growth or decay?

5. Atmospheric pressure decreases as the height above sea level increases, at a rate of about 12% per 1000m.

6. $y = 120{,}000(1.1)^t$

7. The value of a house appreciates at 12% a year.

8. $y = 120{,}000(.9)^t$

9. The value of a car depreciates at 12% a year.

10. A savings account earns interest at a rate of 4% a quarter.

Answer the following questions using the compound interest formula.

A savings account compounds its interest quarterly at a rate of 8%. If you invest $1500 what will be the principal in…

11. 9 months

12. 5 years

A savings account compounds its interest semi-annually at a rate of 4%. If you invest $25000 today what will be the principal on…

13. October 27, 2012

14. October 27, 2020

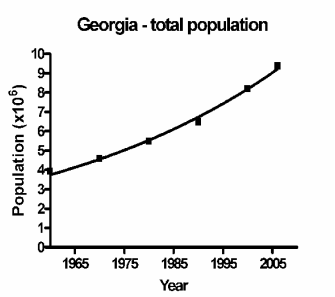
Answer the following. (could be growth or decay)

15. A house appreciates in value at a rate of 5%. The house is valued at $130,000 in 1983. What was its value in 1997?

16. A car depreciates in value at a rate of 10%. The car currently has a value of $12,000. What will be its value in 10 years?

17. You invested $500 in an account with 8.5% interest rate for 9 years. How much money will you have at the end of 9 years?

18. When did the Georgia's population double compared to its population in 1960?



19. You decide to sell your ipod. You initially paid $300 for it. It has been 2 years and each year the value depreciated 35%. How much is it worth?

20. A savings account compounds interest quarterly. The interest rate is 12% and you deposit $5000 into the account. You want to double your money. How long will you have to wait?

a) 6.12 years b) 5.86 years c) 23.45 years d) 1.53 years