1. The foundation of your house has about 1,200 termites. The termites grow at a rate of about 2.4% per day. How long until the number of termites doubles?

2. You drink a beverage with 120 mg of caffeine. Each hour, the caffeine in your system decreases by about 12%. How long until you have 10mg of caffeine?

3. You buy a new computer for $2100. The computer decreases by 50% annually. When will the computer have a value of $600?

4. An adult takes 400 mg of ibuprofen. Each hour, the amount of ibuprofen in the person's system decreases by about 29%. How much ibuprofen is left after 6 hours?

5. You have inherited land that was purchased for $30,000 in 1960. The value of the land increased by approximately 5% per year. What is the approximate value of the land in the year 2011?

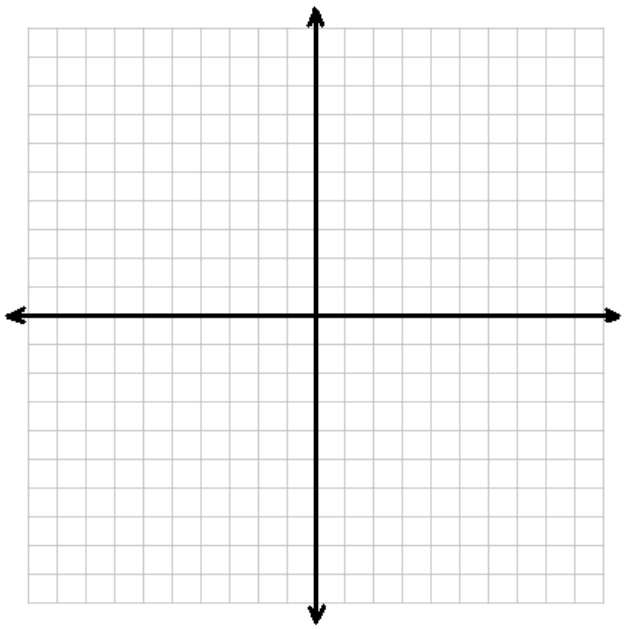
6. In 1985, there were 285 cell phone subscribers in the small town of Centerville. The number of subscribers increased by 75% per year after 1985. How many cell phone subscribers were in Centerville in 1994?

Determine whether each shows exponential growth, exponential decay or neither:

7. $y = .3(0.4)^{-x}$ 8. $f(x) = 2 \cdot (\frac{5}{2})^x$ 9. $y = \frac{1}{2} \cdot (.5)^x$

Create a table of values, graph the exponential function, and determine whether the function is an example of exponential growth, exponential decay, or neither:

10. $\boldsymbol{f(x) = \frac{1}{2} \cdot 2^{x+1}}$



Solve for the value of x in each exponential equation: Show all work. Place the answer value of x on the line:

11. $2^{3x} = 4^{x+2}$ **11._____**

12. $3^{2x-1} = \frac{1}{9}$ **12._____**

13. $25^{2x} = 125^{x+2}$ **13._____**

14. $4^{x+1} = 8^{2x+3}$ **14._____**

15. $3^{x-4} = \frac{1}{27}$ **15._____**

16. $9^{2x-5} = 27$ **16._____**

17. $3^{2x-1} = 243^{2x}$ **17._____**

18. $2^{6x} = 32^{x-2}$ **18._____**

19. Identify the parent function. Then describe the transformations from the parent function.

$f(x) = .75 \cdot 2^{x+5} - 1$

20. Identify the parent function. Then describe the transformations from the parent function.

$f(x) = 3 \cdot \frac{1}{2}^{x-1} + 2$