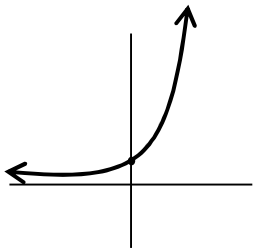

Exponential Functions Homework

For each function: a. List the y-intercept
b. Indicate whether it is increasing or decreasing

1. $y = 42(1.25)^x$
2. $f(x) = 0.8(20)^x$
3. $g(x) = 450(¾)^x$
4. $y = ½ (0.489)^x$

For each function: a. Calculate the y-value for each x in the list.
b. Graph the function neatly on graph paper (Do not sketch. Plot points.)

5. $y = 3(1.5)^x$ Let x = {0, 1, 2, 3, 4, 5}
6. $y = 10(0.6)^x$ Let x = {0, 1, 2, 3, 7, 10}

Write an exponential function for each problem. $y = a(b)^x$

7. The height of a plant is 8 inches, and it increase by 5% every week.
8. You deposit $250 in the bank, and it earns 3% interest every year.
9. 2000 bacteria were living on a Petri dish, and their population increased by 18% every day.
10. A beach contains 42 tons of sand, and the amount of sand decreased by 2% every time a wave goes out.
11. A runner's time to finish a race was 83 seconds, and it decreased by 12% every week he practiced.
12. A chunk of uranium had a mass of 24 grams, and its mass decreased by ¼ every year.

For each problem: a. Write an exponential function to model the problem.
b. Solve for the y-values it asks for.

13. You invest $5000 in a fund that earns 7% interest. How much money is in your account 8 years later?
14. A radioactive rock loses 4% of its mass every hour. The rock has a mass of 80 grams. What is its mass 12 hours later?
15. There are 120 bacteria on a Petri dish. Their population grows 36% every day. How many bacteria are there after four days?
16. There are 5300 rural acres in Comal County. The acreage decreases by $\frac{3}{100}$ each year. How many rural acres will there be in 15 years?
17. Your little brother is 32 inches tall. If his height increases by $\frac{1}{12}$ every year. How tall will he be in 10 years?