

Determine the multiplier for each growth or decay rate.

1. 5% growth

2. 12% decay

3. 30% growth

4. 98% decay

5. 1% decay

6. 300% growth

7. 0.85% growth

8. 2.5% decay

9. tripling

10. halving

State whether the formula models growth or decay. State the y-intercept and factor of change.

11. $f(x) = 3^x$:

a =

b =

12. $f(x) = 0.25^x$:

a =

b =

13. $f(x) = 1.01^x$:

a =

b =

14. $f(t) = 2(0.033)^t$:

a =

b =

15. $f(t) = 6(1.75)^t$:

a =

b =

16. $f(x) = 2\left(\frac{1}{2}\right)^x$:

a =

b =

For problems 17-20, State the starting point, a , and then the factor of change, b . Remember to convert the percentage to a decimal before adding or subtracting from 1. Write the equation to model each situation. Then use the equation to answer the questions.

State the Domain and the Range for each problem:

17. E. coli bacteria double in population every thirty minutes. If the initial population is 85, what's the population of bacteria after 3 hours? After one day?

18. Trevin purchases a car for \$19,000. The car depreciates at a rate of 18% annually. After 6 years, Keaton offers to buy the car for \$4,500. Should Trevin sell the car to Keaton? Explain.

19. The number of people who own computers has increased 23.2% annually since 1990. If 500,000 people owned a computer in 1990, predict how many people will own a computer in 2015.

20. You apply for and receive a credit card. You spend \$2,000 at an interest rate of 22% per month. How much debt will you have in one month? After 2 years?