

Simplify. Your answer should not include negative exponents.

1. $\frac{mn^4}{3n^4}$ $\frac{m}{3}$

2. $\frac{5m^4}{m^7}$ $\frac{5}{m^3}$

3. $\frac{3m^5}{6m}$ $\frac{m^4}{2}$

4. $2r^{-3} \cdot 2r^{-2}$ $\frac{4}{r^5}$

5. $\frac{4x^0y^0z^3}{x^{-2}}$ $4x^2z^3$

6. $\frac{3j^3k^{-4}}{3jk}$ $\frac{j^2}{k^5}$

7. $3x^{-2}$ $\frac{3}{x^2}$

8. $3x^2y^{-4} \cdot x^3y^4$ $3x^5$

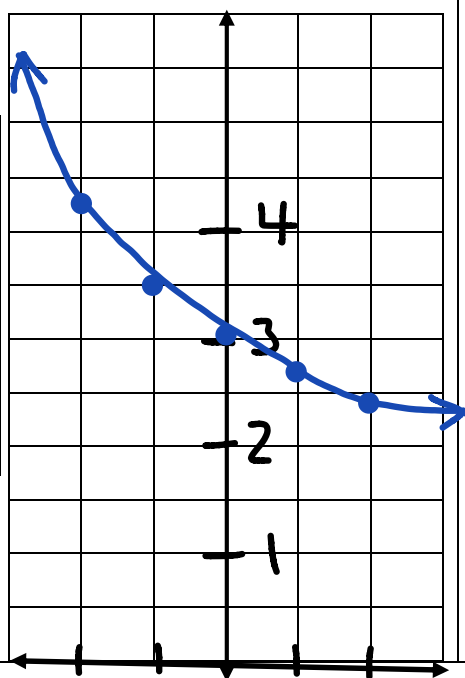
9. $\left(\frac{2x^4}{y^3}\right)^{-1}$ $\frac{y^3}{2x^4}$

10. $\frac{x^2y^{-2}z^{-2}}{x^5y^0z^0}$ $\frac{1}{x^3y^2z^2}$

Graph the exponential equation. Find the asymptote and intercepts.

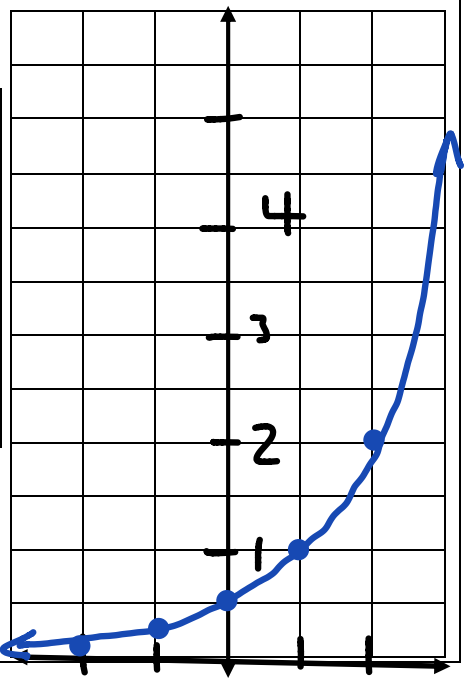
11. $y = \left(\frac{2}{3}\right)^x + 2$

x	y
-2	4.25
-1	3.5
0	3
1	2.67
2	2.4



12. $y = 2^{x-1}$

x	y
-2	.125
-1	.25
0	.5
1	1
2	2



Find the compound interest, growth, or decay.

13. In 2007, the domestic pet population in a certain area is 30,000. The number of pets increases exponentially at a rate of 6% per year. What will the population be in 2019?

60,365.89

14. Find the balance in an account at the end of 6 years if \$1,500 is invested at an interest rate of 6% per year compounded daily.

2,149.93

15. You have bought a car for \$38,000. The value of the car decreases in value by 8% each year. What is the value of the car after 7 years?

21,198.17

16. You invest \$2500 in an account that earns 7.5% interest compounded quarterly, how much will you accumulate after 20 years?

11,049.68

17. The growth of a company can be modeled by $y = 271(1.06)^x$ where x is the number of years since 2000. What would be the projected growth of this company in 2016?

688.44

18. How much money will you have if you invest \$6000 compounded continuously for 12 years at a rate of 4%?

9696.45

19. An account earning 6.6% interest compounded continuously for 10 years would have a balance of how much if the principal was \$550.00?

1064.14

20. What was the principal for an account compounded daily earning 3.9% for 15 years that now has a balance of \$2,500,000.00?

1,392,808.18

21. A teenager saved small dollar amounts throughout the school year and now has \$712.00. They can choose from two bank offers. The first is 5.3% compounded monthly for six years. The second is compounded quarterly for five years at 6.0%. Which account will yield the most money? What is the dollar amount difference between the accounts at the end of their terms?

977.87

958.96

difference 18.91