

**Writing, Graphing, and Interpreting Exponential Functions***Independent Practice*

Use the table below to answer questions 1 – 4.

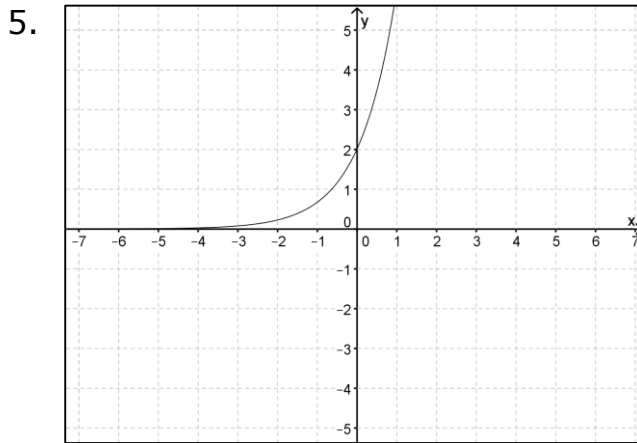
The table shows the amount of limestone, in tons, removed from a quarry each month.

Year	January	February	March	April	May
Number of Trees	585	761	989	1285	1671

1. Make a scatterplot of the data using your graphing calculator, graphing technology, or a spreadsheet program or app.
2. Use your technology to calculate and write an exponential function that best fits this data set.
3. Graph the function rule over your data set. How well does the function rule match the data?
4. Use the table feature of your technology to compare the function values for $\{x: x = 1, 2, 3, 4, 5\}$ to the data values in the table. What do you notice?

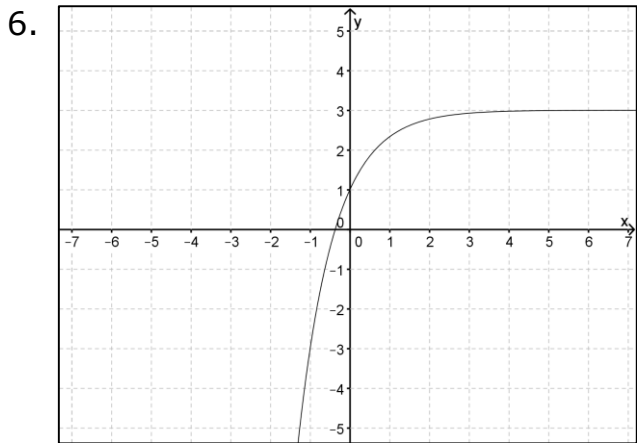


In questions 5 – 7, for each graph shown, identify the y -intercept and the equation of the asymptote.



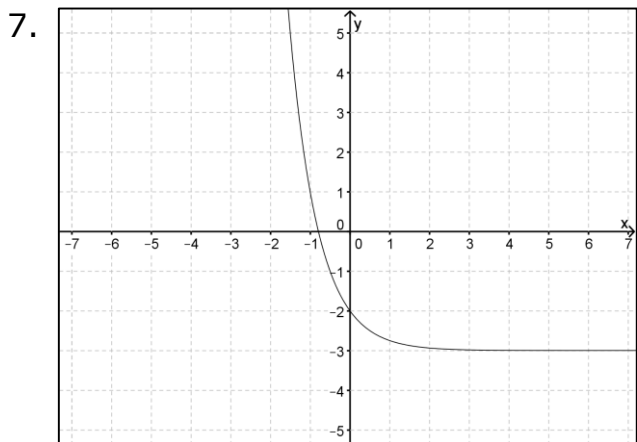
y -intercept: _____

asymptote: _____



y -intercept: _____

asymptote: _____



y -intercept: _____

asymptote: _____



For questions 8 – 11, use the information that is given in each situation to write an exponential function of the form $f(x) = ab^x$.

8. Angela received a bonus check from work for \$1,250. She wants to deposit this money into an account that earns 6.5% annual interest, compounded annually at the end of the year. How much money will Angela have in the account after x years?

9. Darien purchased a new truck for \$24,500. A used car website told Darien that his new truck will depreciate at a rate of 14% each year. What will be the value of Darien's truck after x years?

10. A population of 125 deer increases in population by 25% each year. How many deer will there be in x years?

11. In a basketball league, a ball is considered to be fully inflated if the rebound height, or height to which the ball bounces back after it is dropped, is $\frac{3}{4}$ of the height from which it is dropped. If the ball is dropped from a height of 7 feet, what is the rebound height of the ball after x bounces?



For questions 12 – 15, interpret the values of a and b for the given exponential function in the form $f(x) = ab^x$.

12. The population of an algae culture is indicated by the function $f(x) = 128(2)^x$, where x represents the number of days since the culture began growing.

13. At the end of the growing season, the number of bushels of corn harvested each week is given by the function $f(x) = 625\left(\frac{2}{3}\right)^x$, where x represents the number of weeks since the corn was initially harvested.

14. Deanne purchased a used car. The value of the car after x years can be represented using the function $f(x) = 14,000\left(\frac{7}{8}\right)^x$.

15. Ethan deposited money into a savings program. Interest is paid at the end of each year. Ethan uses the function $f(x) = 400(1.045)^x$ to determine the amount of money in the account after x years.

