If the natural logarithm button on your calculator were broken, how could you still use your calculator to find the value of the expression **ln** 65?

Choose the correct answer below.

- A. The common logarithm has the same value as the natural logarithm. Use the common logarithm button to find the value of **log** 65.
- B. Graph the function $y = e^x$, and use the table to find an approximate value of x for which y is equal to 65.
- C. Finding the natural logarithm of a value x is the same as evaluating e^x. Use the calculator to evaluate the expression e^{65}.
- D. Graph the function $y = 10^x$, and use the table to find an approximate value of x for which y is equal to 65.

Describe and correct the error a student made in solving the exponential equation.

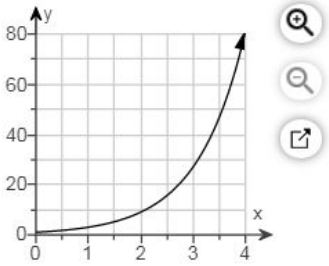
$$16e^t = 98$$
$$e^t = 6.125$$
$$6.125t = \ln e$$
$$t = \frac{\ln e}{6.125}$$

✗

Select the correct choice and fill in the answer box to complete your choice. (Simplify your answer.)

- A. The student used the natural logarithm instead of the common logarithm. The solution should be t = ☐.
- B. The student did not simplify **ln** e. The simplified answer is t = ☐.
- C. The student did not convert to logarithmic form correctly. The solution should be t = ☐.
- D. The student did not divide correctly. The solution should be t = ☐.

Use the graph of $y = 3^x$ to estimate the value of $\log_3 50$. Explain your reasoning.



A student says that $\log_3\left(\frac{1}{27}\right)$ simplifies to -3. Is the student correct? Explain.

Explain why the expression **ln** 1,000 is not equal to 3.

Choose the correct answer below.

- A. The base of the natural logarithm is e, not 10, and e^3 is not equal to 1,000.
- B. Instead of solving the equation $10^x = 1{,}000$ for x, the correct equation to solve for x is $1{,}000^x = 10$.
- C. The value of a logarithmic expression must be a power of 10, and 3 is not a power of 10.
- D. The base of the natural logarithm is e, not 3. The value of e is approximately 2.7, not 3.

Write the inverse of the exponential function.

$y = 18^x$