

Topic 26: I identify and use properties of logarithmic expressions and logarithmic functions
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1. Which is equivalent to  $\ln[(x+1)e^x]$ ?

(a)  $\ln xe^x + \ln e^x$

(b)  $\ln x + \ln(1) + \ln e^x$

(c)  $\ln(x+1) + x$

(d)  $x \ln(x+1)e$

2. Write the expression  $\ln(x+5) = y$  in exponential form.

3. Find the domain of  $f(x) = \ln(x-2)$ .

4. Use the properties of logarithms to simplify the expression  $\ln xe^x$ .

5. Write the equivalent logarithmic expression for  $10^{-3} = \frac{1}{1000}$ .

6. Which of the following is false?

(a)  $\ln x = \ln x - \ln 1$

(b)  $\ln e = 1$

(c)  $\ln(x+1) = \ln x + \ln 1$

(d)  $\ln x = \ln x + \ln 1$

#### Answers

1. C

2.  $x+5 = e^y$

3.  $(2, \infty)$

4.  $(\ln x) + x$

5.  $\log\left(\frac{1}{1000}\right) = -3$

6. C