

**Log SAT/ACT Test**

- \_\_\_\_\_ 1. What is the log of 100 with base 10?
- 10
  - 2
  - 3
  - 1
- \_\_\_\_\_ 2. The natural base  $e$  is
- rational.
  - imaginary.
  - irrational.
  - undefined.
- \_\_\_\_\_ 3. What is the simplified form of  $\frac{8e^4}{-4e^3}$ ?
- $-2e^7$
  - $-2e$
  - $\frac{1}{2e}$
  - $\frac{-e}{2}$
- \_\_\_\_\_ 4. What type of function is  $f(x) = 2e^{2x}$ ?
- Exponential decay function
  - Linear function
  - Quadratic function
  - Exponential growth function
- \_\_\_\_\_ 5. Which of the following is equivalent to  $\log_5 5^3$ ?
- 3
  - 125
  - 3
  - 125
- \_\_\_\_\_ 6. What is the solution of the equation  $9^{x+1} = 27^{x-1}$ ?
- No solution
  - 2
  - 5
  - 2
- \_\_\_\_\_ 7. What is the asymptote of the graph of  $f(x) = 2^x$ ?
- $x$ -axis
  - $y$ -axis
  - $y = 1$
  - $y = -1$

- \_\_\_\_\_ 8. Which of the following is equivalent to  $\log_b \frac{x}{y}$  ?
- a.  $\log_b x \div \log_b y$
  - b.  $\log_b x - \log_b y$
  - c.  $\log_b (x - y)^{\frac{1}{2}}$
  - d.  $\log_b x + \log_b y$

**Choose the statement that is true about the given quantities.**

- A. The quantity in column A is greater.
  - B. The quantity in column B is greater.
  - C. The two quantities are equal.
  - D. The relationship cannot be determined from the given information.
9.      Column A      Column B  
 $\log_{10} 1000$        $\log_3 27$
10.      Column A      Column B  
The  $y$ -value when      The  $y$ -value when  
 $x = 0$  of the graph       $x = 0$  of the graph  
of  $y = -2 \cdot 4^x$       of  $y = 2 \cdot 5^x$