Logs
Pre-Calc RH

SAT subject

14. If $\log_2 ab = 5$ and $\log_3 b = 4$, then $a =$

(A) $\dfrac{4}{81}$

(B) $\dfrac{32}{81}$

(C) $\dfrac{4}{5}$

(D) $\dfrac{5}{4}$

(E) $\dfrac{32}{5}$

16. If $\ln(x) = 1.58$, then $\ln(2x) =$

(A) 1.15
(B) 2.27
(C) 2.49
(D) 3.16
(E) 3.58

29. Let a, b, x, and y represent real numbers greater than 1. If $y = b^{ax}$, which of the following must be true?

(A) $x \log_a y = b$
(B) $x \log_b y = a$
(C) $\log_{ax} y = b$
(D) $\log_y b = ax$
(E) $\log_b y = ax$

31. One method for finding a given number that is in an ordered list of numbers requires a computer to repeatedly split the list in half until the number is found. For a list of n numbers, the maximum number of splits is the least integer greater than or equal to $\dfrac{\log n}{\log 2}$. What is the maximum number of splits needed to find a given number in a list of 300,000 numbers?

(A) 3   (B) 6   (C) 15   (D) 18   (E) 19

33. If $f(x) = \log_2 x$ for $x > 0$, then $f^{-1}(x) =$

(A) 2^x

(B) x^2

(C) $\dfrac{x}{2}$

(D) $\dfrac{2}{x}$

(E) $\log_x 2$

38. If $(6.31)^m = (3.02)^n$, what is the value of $\dfrac{m}{n}$?

(A) -0.32 (B) 0.32   (C) 0.48   (D) 0.60   (E) 1.67

45. If $\log_a 3 = x$ and $\log_a 5 = y$, then $\log_a 45 =$

(A) $2x + y$
(B) $x^2 + y$
(C) $x^2 y$
(D) $x + y$
(E) $9x + y$