

CHAPTER
7

NAME _____ DATE _____

SAT/ACT Chapter Test

For use after Chapter 7

1. Evaluate $\sqrt[3]{-64}$.
 (A) 8 (B) -8
 (C) 4 (D) -4

2. Evaluate $\left(\frac{1}{125^{1/3}}\right)^{-1}$.

- (A) -5 (B) 5
 (C) $\frac{1}{-5}$ (D) $\frac{1}{5}$

3. What is the simplified form of $(3^{1/2} \cdot 8^{1/3})^2$?

- (A) 4 (B) 12
 (C) $2\sqrt[3]{4}$ (D) $24^{1/3}$

4. What is the simplified form of $\frac{1}{a^{-5/4}}$?

- (A) $\frac{1}{a^{4/5}}$ (B) $a^{4/5}$
 (C) $a^{5/4}$ (D) $a^{-5/4}$

In Exercises 5-7, perform the indicated operation. Let $f(x) = x + 1$ and $g(x) = x - 1$.

5. $f(x) + g(x)$
 (A) $2x$ (B) $x^2 - 1$
 (C) $2x - 2$ (D) $2x^2 - 1$

6. $f(x) \cdot g(x)$
 (A) $2x^2 - 1$ (B) $2x^2$
 (C) $2x^2 + 1$ (D) $x^2 - 1$

7. $f(g(x))$
 (A) x (B) $x^2 - 1$
 (C) $x - 1$ (D) $2x$

8. What is the solution of $2(x + 3)^{1/3} - 5 = 1$?
 (A) $\frac{1}{24}$ (B) -24
 (C) 24 (D) no solution

Quantitative Comparison In Exercises 9 and 10, 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
$x^{1/3}$	$y^{1/3}$

10.

Column A	Column B
The mean of 1, 2, 3, 4, 5, 6, 7	The median of 1, 2, 3, 4, 5, 6, 7

SAT/ACT Chapter Test

For use after Chapter 8

1. What is the log of 100 to the base 10?

- (A) 10 (B) 2
(C) 3 (D) 1

2. The natural base e is

- (A) rational (B) imaginary
(C) irrational (D) undefined

3. What is the simplified form of $\frac{8e^4}{-4e^3}$?

- (A) $-2e^7$ (B) $-2e$
(C) $\frac{1}{2e}$ (D) $\frac{-e}{2}$

4. What type of function is $f(x) = 2e^{2x}$?

- (A) Exponential decay function
(B) Linear function
(C) Quadratic function
(D) Exponential growth

5. Which of the following is equivalent to $\log_5 5^3$?

- (A) -3 (B) 125
(C) 3 (D) -125

6. What is the solution of the equation $9^{x+1} = 27^{x-1}$?

- (A) No solution (B) -2
(C) 5 (D) 2

7. What is the asymptote of the graph of $f(x) = 2^x$?

- (A) x -axis (B) y -axis
(C) $y = 1$ (D) $y = -1$

8. Which of the following is equivalent to $\frac{x}{\log_b y}$?

- (A) $\log_b x \div \log_b y$ (B) $\log_b x - \log_b y$
(C) $\log_b(x - y)^{1/2}$ (D) $\log_b x + \log_b y$

Quantitative Comparison Exercises 9 and 10, 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 $x = 0$ of the graph of $y = -2 \cdot 4^x$	The y value when $x = 0$ of the graph of $y = 2 \cdot 5^x$