

TB(2B) Ch. 8 Laws of Integral Indices
Multiple Choice Questions

1. [11-12 STest2]

Find the value of $(2 \times 10^{33})^{-3}$ and express the answer in scientific notation.

- A. -8×10^{-99} B. 0 C. 0.125×10^{-99} D. 1.25×10^{-100}

2. [11-12 STest2]

Which of the following(s) is/are true?

- I. $1_{16} > 1_{10} > 1_2$
II. $0.01_2 > 0.1_{10}$
III. $19_{16} + 1_{16} = 20_{16}$

- A. II only
B. I and II only
C. I and III only
D. II and III only

3. [11-12 S. Test 2]

Simplify $\left(\frac{a^{n+1} \times a^{1-n}}{2a^n}\right)^{-1}$.

- A. $\frac{1}{2a^{n-2}}$ B. $\frac{a^{2-n}}{2}$ C. $2a^{n-2}$ D. $2a^{2-n}$

4. [11-12 Final Exam #16]

$256_{16} =$

- A. 1010110_2 B. 110101001_2 C. 100000000_2 D. 1001010110_2

5. [12-13 S. Test 2]

Simplify $\left(-\frac{3}{2}a^0b^{-1}c^3\right)^{-2}$.

- A. $-\frac{9b^2}{4c^6}$ B. $-\frac{4b^2}{9c^6}$
C. $\frac{4b^2}{9c^6}$ D. $\frac{9b^2}{4c^6}$

6. [12-13 S. Test 2]

Find the value of $50_{10} - 2F_{16} + 1011_2$.

- A. 12_{10} B. 1101_{10}
C. 1100_2 D. E_{16}

7. [12-13 Final Exam #3]

Write $5 \times 16^4 + 13 \times 16^5 + 2 \times 16^2 + 8$ as a hexadecimal number.

- A. $5D208_{(16)}$ B. $D5028_{(16)}$
C. $D50280_{(16)}$ D. $D50208_{(16)}$

8. [12-13 Final Exam #4]

$0.2 \times 10^{2012} + 0.3 \times 10^{2013} =$

- A. 0.5×10 .
B. 0.5×10^{4025} .
C. 0.6×10^{2013} .
D. 3.2×10^{2012} .

9. [13-14 S.Test 2 #2]

Solve $4(2^x) = \frac{1}{16}$ for x .

- A. -6
B. -2
C. 2
D. 4

10. [13-14 S.Test 2 #6]

Simplify $9^{1-a} \div 3^{a-1}$.

- A. 27^{1-a}
B. 9^{3-3a}
C. 3^{1-3a}
D. 3^{2-2a}

11. [13-14 S.Test 2 #7]

Which of the following has/have the same value as $4(2^8 + 2^4 + 2^0)$?

- I. 100010001_2
II. 444_{16}
III. 1092_{10}

- A. III only
B. II and III only
C. I and II only
D. I and III only

12. [13-14 S.6 Mock Exam #7]

Convert $110010x0y1_2$ into denary number.

- A. $801 + 8x + 2y$
B. $407 + 8x + 2y$
C. $1602 + 16x + 4y$
D. $417 + 16x + 4y$

13. [13-14 Final Exam #13]

$$\frac{16^{2a} \cdot 9^{5a}}{4^{-a}} =$$

- A. 6^{10a} B. 6^{20a}
C. $2^{6a} \cdot 3^{10a}$ D. $2^{8a} \cdot 3^{10a}$

14. [13-14 Final Exam #19]

$$3 \times 2^8 + 2^6 + 4 \times 2^2 =$$

- A. 101000100₍₂₎ .
B. 1101010000₍₂₎ .
C. 1101000100₍₂₎ .
D. 1101010100₍₂₎ .

15. [13-14 S.6 Mock Exam #2]

Simplify $\frac{\left(a^{\frac{3}{4}}b^{-4}\right)^2}{b^{-1}a^2}$.

- A. $\frac{1}{a^{\frac{1}{2}}b^7}$
B. $\frac{a^{\frac{1}{2}}}{b^7}$
C. $\frac{a^{\frac{1}{2}}}{b^9}$
D. $\frac{1}{a^{\frac{1}{2}}b^9}$

16. [13-14 S.6 Mock Exam #7]

Convert $110010x0y1_2$ into denary number.

- A. $801 + 8x + 2y$
B. $407 + 8x + 2y$
C. $1602 + 16x + 4y$
D. $417 + 16x + 4y$

17. [14-15 Standardized Test #3]

$$111_{10} - 111_2 =$$

- A. 0. B. 68_{16} .
C. 68_{10} . D. 1101001_2 .

18. [14-15 Standardized Test #6]

$$(5^{2a})^0 \cdot (5^{2a})^3 \div [2(5^a)]^2 =$$

- A. $\frac{5^{3a}}{2}$. B. $\frac{5^{3a}}{4}$.
C. $\frac{25^{2a}}{2}$. D. $\frac{25^{2a}}{4}$.

19. [14-15 S.6 Mock Exam #1]

$$\frac{(p + 2p + 3p + 4p)^2}{p \cdot 2p \cdot 3p \cdot 4p} =$$

- A. 24.
B. $\frac{25p^2}{6}$.
C. $\frac{24}{p^2}$.
D. $\frac{25}{6p^2}$.

20. [14-15 S.6 Mock Exam #32]

$$1101011011_2 =$$

- A. $3 \times 2^9 + 5 \times 2^5 + 11$.
B. $3 \times 2^8 + 5 \times 2^4 + 5$.
C. $13 \times 2^7 + 2^5 + 5 \times 2^2 - 1$.
D. $13 \times 2^6 + 2^4 + 11$.

21. [14-15 Final Exam #5]

Arrange the followings in ascending order.

- I. 111001_2
II. $3A_{16}$
III. 56_{10}

- A. $I < II < III$ B. $II < III < I$
C. $III < I < II$ D. $III < II < I$

22. [14-15 Final Exam #16]

Calculate $35.4 \times 10^{2015} - 3.18 \times 10^{2017}$ and express the answer in scientific notation.

- A. 3.222×10^{2015}
- B. 3.222×10^{2017}
- C. -2.826×10^{2015}
- D. -2.826×10^{2017}

23. [15-16 Final Exam #4]

Calculate $8.3 \times 10^{2016} - 50 \times 10^{2015}$ and express the answer in scientific notation.

- A. -4.17×10^{2016}
- B. 3.3×10^{2015}
- C. 33×10^{2015}
- D. 3.3×10^{2016}

24. [15-16 Final Exam #11]

$B000000F00014_{16} =$

- A. $11 \times 16^{12} + 15 \times 16^5 + 14$.
- B. $11 \times 16^{12} + 15 \times 16^5 + 20$.
- C. $11 \times 16^{12} + 14 \times 16^5 + 1 \times 16^1 + 4 \times 16^0$.
- D. $11 \times 16^{13} + 14 \times 16^6 + 1 \times 16^2 + 4 \times 16^1$.

25. [15-16 S.6 Mock Exam #1]

$$\frac{(3a^3)^2}{3a^4} =$$

- A. $2a^2$.
- B. $2a$.
- C. $3a^2$.
- D. $3a$.

26. [15-16 S.6 Mock Exam #32]

$$2^2 \times 2^{x+2} - 2^x - 2 =$$

- A. $30^x - 2$.
- B. 2^{x+4} .
- C. 16.
- D. $15(2^x) - 2$.

27. [16-17 S.6 Mock Exam #33]

$$A5000BEEF0097_{16} =$$

- A. $165 \times 16^{12} + 48879 \times 16^5 + 97.$
- B. $181 \times 16^{12} + 53248 \times 16^5 + 97.$
- C. $165 \times 16^{11} + 48879 \times 16^4 + 151.$
- D. $181 \times 16^{11} + 53248 \times 16^4 + 151.$

28. [16-17 S.6 Mock Exam #1]

$$\left(-\frac{1}{9}\right)^{2017} \cdot 27^{2016} =$$

- A. $-\frac{1}{3^{2014}}.$
- B. $-\frac{1}{9^{2015}}.$
- C. $-3^{2014}.$
- D. $-9^{2015}.$

29. [15-16 Standardized Test #5]

Convert the decimal number $2^{13} + 2^{12} + 2^7 + 2^6 + 7$ to a binary number.

- A. 1100011000111_2
- B. 1100011000011_2
- C. 11000011000111_2
- D. 11000011000110_2

30. [15-16 Standardized Test #4]

Simplify $\frac{(a^{-2}b^3c^0)^{-1}}{(a^2b^{-2})^3}.$

- A. $\frac{a^6}{b^3}$
- B. $\frac{b^3}{a^4}$
- C. $\frac{1}{a^4b^3}$
- D. $\frac{1}{a^6b^{-3}c}$

31. [15-16 Standardized Test #9]

$$\frac{3^{n-1} + 3^{n-2}}{3^{-2+n}} =$$

- A. 4.
- B. 3^{n-1} .
- C. $1 + 4^{n-1}$.
- D. $4 \cdot 3^{n-2}$.

~ End ~