

Unit 3: Exponents

Name: _____

Date: _____

1. The expression $3^2 \cdot 3^3 \cdot 3^4$ is equivalent to
A. 27^9 B. 27^{24} C. 3^9 D. 3^{24}

2. What is half of 2^6 ?
A. 1^3 B. 1^6 C. 2^3 D. 2^5

3. Which expression is equivalent to $(3x^2)^3$?
A. $9x^5$ B. $9x^6$ C. $27x^5$ D. $27x^6$

4. Which expression is equivalent to $3^3 \cdot 3^4$?
A. 9^{12} B. 9^7 C. 3^{12} D. 3^7

5. The expression $\frac{(10w^3)^2}{5w}$ is equivalent to
A. $2w^5$ B. $2w^8$ C. $20w^5$ D. $20w^8$

6. What is one-third of 3^6 ?
A. 1^2 B. 3^2 C. 3^5 D. 9^6

7. The value of 5^{-2} is
A. $-\frac{1}{25}$ B. $\frac{1}{25}$ C. -10 D. -25

8. What is the value of $\frac{3}{4} \left(\frac{2}{3}\right)^0$?
A. 1 B. $\frac{4}{3}$ C. $\frac{3}{4}$ D. $\frac{6}{12}$

9. Evaluate: $-10x^0$

10. What is the value of 3^{-2} ?
A. $\frac{1}{9}$ B. $-\frac{1}{9}$ C. 9 D. -9

11. Which expression is equivalent to $x^{-1} \cdot y^2$?
A. xy^2 B. $\frac{y^2}{x}$ C. $\frac{x}{y^2}$ D. xy^{-2}

12. The expression $8^{-4} \cdot 8^6$ is equivalent to
A. 8^{-24} B. 8^{-2} C. 8^2 D. 8^{10}

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13. Which expression is equivalent to x^{-4} ?
- A. $\frac{1}{x^4}$ B. x^4 C. $-4x$ D. 0
14. What is the value of 2^{-3} ?
- A. $\frac{1}{6}$ B. $\frac{1}{8}$ C. -6 D. -8
15. What is the value of $3^0 + 3^{-2}$?
- A. 0 B. $\frac{1}{9}$ C. $1\frac{1}{9}$ D. 6
16. The expression $(\frac{3}{4})^2 \cdot (\frac{1}{4})^{-2}$ is equivalent to
- A. $\frac{9}{16}$ B. $\frac{9}{256}$ C. 3 D. 9
17. The expression $(3c)^{-2}$ is equivalent to
- A. $-6c^2$ B. $\frac{1}{3c^2}$ C. $\frac{1}{9c^2}$ D. $\frac{3}{c^2}$
18. Which of the following is equivalent to the expression below?
- $10 \times 10 \times 10 \times 10 \times 10$
- A. 10×4 B. 10×5 C. 10^4 D. 10^5
19. Which expression is equivalent to 10^6 ?
- A. $10 + 6$
B. 10×6
C. $10 \times 10 \times 10 \times 10 \times 10 \times 10$
D. $10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10$
20. Write $2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 5$ in exponential notation.
21. Which of the following expressions has the *greatest* numerical value?
- A. 2×10^3 B. 4×10^5
C. 5×10^4 D. 7×10^2
22. Which of the following is equivalent to the expression below?
- 5^4
- A. 54 B. 5×4
C. $5 \times 5 \times 5 \times 5$ D. $4 \times 4 \times 4 \times 4 \times 4$

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1.
Answer: C
2.
Answer: D
3.
Answer: D
4.
Answer: D
5.
Answer: C
6.
Answer: C
7.
Answer: B
8.
Answer: C
9.
Answer: -10
10.
Answer: A
11.
Answer: B
12.
Answer: C
13.
Answer: A
14.
Answer: B
15.
Answer: C
16.
Answer: D
17.
Answer: C
18.
Answer: D
19.
Answer: C
20.
Answer: $2^3 \times 3^2 \times 5^2$

21.
Answer: B
22.
Answer: C