

M2 Final Examination

Laws of Exponents with Integer Exponents

Name: _____ No. _____

Direction: Choose the letter of the correct answer.

1. Which statement is true?

A. $a^m \cdot a^n = a^{m-n}$

B. $a^m \cdot a^n = (a + a)^{m+n}$

C. $a^m \cdot a^n = a^{m+n}$

D. $a^m \cdot a^n = a^{mn}$

2. Simplify $\frac{a^7}{a^2}$

A. a^{14}

B. a^5

C. a^9

D. $a^{3.5}$

3. Simplify $(p^{-2}q^3)^2$

A. $p^{-4}q^6$

B. $\frac{q^6}{p^4}$

C. $p^{-2}q^6$

D. $\frac{q^6}{p^{-4}}$

4. Simplify $x^3 \cdot x^5$

A. x^{15}

B. x^8

C. x^8

D. x^2

5. Simplify $(3x^{-2})^{-1}$

A. $\frac{x^2}{3}$

B. $\frac{1}{3x^2}$

C. $\frac{1}{3x^{-2}}$

D. $3x^2$

6. Simplify $4^2 \cdot 4^{-1} \cdot 4^{-2}$

A. 4

B. 1

C. 4^4

D. $\frac{1}{4}$

7. Simplify $x^{-3} \cdot x^5$

A. x^{-3}

B. x^2

C. x^{-15}

D. x^8

8. Simplify $\frac{(x^2y^{-3})^{-2}}{x^{-4}}$

A. x^8y^6

B. x^0y^6

C. $\frac{y^6}{x^8}$

D. x^2y^6

9. Simplify 3^{-2}

A. -6

B. -9

C. $\frac{1}{3}$

D. $\frac{1}{9}$

10. Simplify $\frac{a^{-2}b^4}{a^3b^{-1}}$

A. $\frac{b}{a^5}$

B. $\frac{b^3}{a^{-1}}$

C. $\frac{a^5}{b^5}$

D. $\frac{b^5}{a^5}$

11. Simplify $\left(\frac{x}{y}\right)^2$

A. $\frac{x^2}{y^2}$

B. $\frac{x}{y^2}$

C. $\frac{2x}{2y}$

D. $\frac{x^2}{y}$

12. Simplify $(m^2)^4$

A. m^8

B. m^6

C. m^{16}

D. $4m^2$

13. Which expression is equivalent to 2^{-3} ?

A. $\frac{1}{8}$

B. $\frac{1}{6}$

C. -8

D. $-\frac{1}{2}$

14. Simplify $\frac{b^{-4}}{b^{-1}}$

A. b^{-3}

B. b^5

C. b^{-5}

D. b^4

15. Simplify $\frac{(2x^3y^{-1})^2}{x^{-2}y^4}$

- A. $\frac{4x^1}{y^3}$
- B. $4x^5y^{-6}$
- C. $\frac{2x^6y^{-2}}{x^{-2}y^4}$
- D. $\frac{4x^8}{y^6}$

16. What is 5^0 ?

- A. 0
- B. Undefined
- C. 1
- D. 5

17. Simplify $(2x)^3$

- A. $6x^3$
- B. $3x^3$
- C. $8x^3$
- D. $2x^3$

18. If $x^a = x^3$ for all nonzero values of x , what is the value of a ?

- A. x
- B. 3
- C. 1
- D. 0

19. Simplify $\frac{m^3n^{-2}}{m^{-1}n^4}$

- A. $\frac{m^4}{n^{-2}}$
- B. $\frac{m^4}{n^6}$
- C. $\frac{m^2}{n^2}$
- D. m^4n^{-2}

20. Simplify $\left(\frac{2}{3}\right)^{-2}$

- A. $\frac{4}{9}$
- B. $-\frac{4}{9}$
- C. $\frac{3}{2}$
- D. $\frac{9}{4}$

21. Simplify $z^4 \cdot z^{-7}$

- A. z^{11}
- B. z^{-3}
- C. z^3
- D. z^{-28}

22. Simplify $\frac{r^9}{r^4}$

- A. r^{13}
- B. r^5
- C. r^{-5}
- D. r^{36}

23. Simplify $(q^3)^5$

- A. q^8
- B. q^{15}
- C. q^2
- D. $5q^3$

24. Simplify $(4ab^2)^2$

- A. $8a^2b^4$
- B. $16ab^4$
- C. $16a^2b^4$
- D. $4a^2b^2$

25. Simplify $\left(\frac{c^2}{d^3}\right)^2$

- A. $\frac{c^4}{d^6}$
- B. $\frac{c^4}{d^5}$
- C. $\frac{c^2}{d^6}$
- D. $\frac{d^6}{c^4}$

26. Rewrite h^{-5} using a positive exponent.

- A. $-h^5$
- B. $\frac{1}{h^5}$
- C. $\frac{1}{-h^5}$
- D. $5h^{-1}$

27. Simplify $\frac{u^{-3}v^2}{u^{-1}v^{-4}}$

- A. $u^{-2}v^{-2}$
- B. $\frac{u^2}{v^6}$
- C. $\frac{v^6}{u^2}$
- D. $u^{-4}v^{-2}$

28. What is k^0 for nonzero k ?

- A. 0
- B. k
- C. 1
- D. Undefined

29. Simplify $\frac{(x^{-2}y)^3}{x^{-1}y^2}$

- A. $\frac{1}{x^5y}$
- B. $\frac{y}{x^5}$
- C. $x^{-5}y$
- D. $\frac{x^5}{y}$

30. Simplify $\left(\frac{5m^{-2}}{n}\right)^{-1}$

- A. $\frac{5m^2}{n}$
- B. $\frac{n}{5m^2}$
- C. $\frac{m^2n}{5}$
- D. $\frac{1}{5m^2n}$