

MINISTRY OF EDUCATION

Badaa Al Mutawa School

Student Name: _____

Grade: _____

Date: _____

Subject: Mathematics

Subject Teacher: Abdulkader Amro

M1L4 Zero and Negative Exponents • MCQ ASSESSMENT

Choose the one correct answer for each question.

SECTION A • EXPONENT RULES AND SIMPLIFICATION

1. Simplify the expression: 46^0 .

- A. 46
- B. 0
- C. 1
- D. 4^6

2. Simplify the expression: w^0 , where $w \neq 0$.

- A. 0
- B. 1
- C. w
- D. w^0

3. Express 8^{-4} using a positive exponent.

- A. -8^4
- B. $\frac{1}{8^4}$
- C. 8^4
- D. $\frac{-1}{8^4}$

4. Express y^{-9} using a positive exponent.

- A. $\frac{1}{y^9}$
- B. $-y^9$
- C. y^9
- D. $\frac{-1}{y^9}$

5. Express $\frac{1}{d^6}$ using a negative exponent.

- A. d^6
- B. d^{-6}
- C. $-d^6$
- D. $-d^{-6}$

6. Express $\frac{1}{10^5}$ using a negative exponent.

- A. 10^{-5}
- B. -10^5
- C. 10^5
- D. -10^{-5}

7. Simplify: $9^4 \cdot 9^{-6}$.

- A. 9^2
- B. $\frac{1}{9^2}$
- C. 9^{-10}
- D. 9^{10}

8. Simplify: $y^{-9} \cdot y^3$.

- A. y^{-6}
- B. y^6
- C. $\frac{1}{y^3}$
- D. $\frac{1}{y^{12}}$

9. Simplify: $\frac{x^{-8}}{x^{-12}}$

- A. x^{-20}
- B. x^{20}
- C. x^4
- D. $\frac{1}{x^4}$

10. Simplify: $\frac{d^{-13}}{d^{-2}}$

- A. d^{-15}
- B. d^{11}
- C. $\frac{1}{d^{11}}$
- D. d^{-11}

11. Simplify: $8^{-7} \cdot 8^7 \cdot 10^4 \cdot 10^{-4}$.

- A. 0
- B. 1
- C. 10
- D. 8

12. Which pair contains exactly the expressions from the original list that are already simplified?

- A. n^4 and $\frac{1}{n^3}$
- B. n^4 and $\frac{1}{n^{-5}}$
- C. $n^6 \cdot n^{-8}$ and $n^7 \cdot p^8$
- D. $\frac{1}{n^{-5}}$ and $\frac{1}{n^3}$

- ☐ n^4
- ☐ $\frac{1}{n^{-5}}$
- ☐ $n^6 \cdot n^{-8}$
- ☐ $n^7 \cdot p^8$
- ☐ $\frac{1}{n^3}$

SECTION B • APPLICATION, REASONING, AND PROBLEM SOLVING

13. A dish containing bacteria has a diameter of 0.0001 kilometer. The diameter of a bacterium is 10^{-16} kilometer. How many times larger is the diameter of the dish than the diameter of the bacterium?

- A. 10^8
- B. 10^{10}
- C. 10^{12}
- D. 10^{16}

14. The table gives a cloud water droplet diameter of 10^{-5} m and a pinhead diameter of 0.001 m. How many times larger is the diameter of a pinhead than the diameter of a cloud water droplet?

- A. 10
- B. 100
- C. 1,000
- D. 10,000

15. Without evaluating, which order lists 5^{-7} , 5^4 , and 5^0 from least to greatest?

- A. 5^0 , 5^{-7} , 5^4
- B. 5^4 , 5^0 , 5^{-7}
- C. 5^{-7} , 5^0 , 5^4
- D. 5^{-7} , 5^4 , 5^0

16. Find the value of $(\frac{1}{3^{-2}})^{-3}$.

- A. $\frac{1}{27}$
- B. $\frac{1}{729}$
- C. 27
- D. 729

17. Determine whether the following numerical expressions are equivalent: $[(\frac{1}{10^{-2}})^0]^3$ and $[(10^{-4})^3]^0$.

- A. They are equivalent because both expressions equal 1.
- B. They are not equivalent because the first equals 0.
- C. They are equivalent because both expressions equal 10^{-12} .
- D. They are not equivalent because the second equals 10^{-12} .

18. A number between 0 and 1 is raised to a negative power. Which conclusion is correct?

- A. False, because a negative power makes the result smaller than 1.
- B. True, because taking a negative power gives the reciprocal of a positive power, making the result greater than 1.
- C. True, because every negative exponent gives a negative result.
- D. False, because negative exponents always give a result between 0 and 1.