Submission 19: Monomials, Exponent Rules, and Scientific Notation

You have looked at it two times before. There are 25 questions worth 28 points.

Part 1

Select the best answer from the choices provided. (Each question is worth one point)

1. Which of the following expressions allows for the use of the power division formula in order for it to be simplified?
   - ○ $k^a \cdot k^b$
   - ○ $2t \div 4n$
   - ○ $w^3 \div w^3$
   - ○ $3b \cdot 3n$

2. Which of the following expressions allows for the use of the power of a monomial formula in order for it to be simplified?
   - ○ $(8t^3w^5)^3$
   - ○ $nm^2 \div n$
   - ○ $23v^2 \cdot v^3$
   - ○ $12t^2$

3. Which of the following expressions requires the quotient of powers formula to be simplied?
   - ○ $h^4 \div 2$
   - ○ $n^4 \cdot n^3$
   - ○ $\frac{t^8w^{12}}{t^4w^7}$
   - ○ $6m - w$

4. Which of the following is a monomial?
   - ○ $4t^6$
   - ○ $2t + t^4$
   - ○ $n^3 \cdot 2k + w$
   - ○ $\frac{1}{2h}$

5. Which of the following is not an example of a monomial?
   - ○ $25t$
   - ○ n^{-2}
   - ○ cm^2
   - ○ 9

6. The degree of a monomial is determined by the sum of the _____ of all its variables.
   - ○ numbers
   - ○ constants
   - ◉ exponents
   - ○ polynomials

7. A term can also be a product or quotient of numbers and _____.
   - ◉ variables
   - ○ numerators
   - ○ notation
   - ○ denominators

8. Which of the following is not in scientific notation?
   - ○ $5.3 \cdot 10^8$
   - ○ $8 \cdot 10^{-6}$
   - ○ $12 \cdot 10^2$
   - ○ $1.08 \cdot 10^{-2}$

9. Which of the following is not in scientific notation?

- [ ] $3 \cdot 10^4$
- [ ] $0.004 \cdot 10^{-5}$
- [ ] $5.44 \cdot 10^9$
- [ ] $1.093 \cdot 10^{-6}$

Part 2

Select the best answer from the choices provided. (Each question is worth one point)

10. Evaluate k^0, when $k = 12$
    - [ ] 12
    - [ ] 2
    - [x] 1
    - [ ] 0

11. Evaluate $k^2 \cdot k$, when $k = 5$
    - [ ] 625
    - [ ] 25
    - [ ] 3,125
    - [ ] 125

12. Evaluate $k^7 \div k^3$, when $k = 8$
    - [x] 4,096
    - [ ] $8.6 \cdot 10^7$
    - [ ] 8^{-4}
    - [ ] 8^{-10}

13. Evaluate $8^3 \div 8^t$ when $t = 2$
    - [ ] 8
    - [ ] 0
    - [ ] 1
    - [ ] 32768

14. Evaluate $t^2 + 3t^2$
    - [ ] $4t$
    - [x] $4t^2$
    - [ ] $3t^3$
    - [ ] $4t^4$

15. Evaluate $(m^2)^3$ when $m = 2$
    - [ ] 32
    - [x] 64
    - [ ] $\frac{1}{2}$
    - [ ] 2

16. Evaluate m^{-3}, when $m = 6$
    - [ ] 216
    - [ ] $\frac{1}{6}$
    - [x] $\frac{1}{216}$
    - [ ] -6

17. Simplify

    $5t^3(n^2t^2 + 5w^4)$
    - [ ] $7n^3t^2 + 10t^3w^4$
    - [x] $5n^2t^5 + 25w^4t^3$
    - [ ] $5n^2t^5 - 25w^4t^3$
    - [ ] $7n^3t^2 + 25w^4t^3$

18. Simplify

    $8j(4t - 5)$
    - [ ] $32jt + 40j$
    - [ ] $32jt + 40$
    - [x] $32jt - 40j$
    - [ ] $32jt - 40$

Part 3

Select the best answer from the choices provided. (Each question is worth one point)

19. Simplify

    $(4 \cdot 10^7)(5 \cdot 10^6)$

    Write the answer in scientific notation.
    - [ ] $20 \cdot 10^{13}$
    - [ ] $20 \cdot 10^{11}$
    - [ ] $.2 \cdot 10^{12}$
    - [ ] $2 \cdot 10^{14}$

20. Simplify

    $-9k^8$

$\frac{c^7k^6}{c^5k^2}$

- (●) c^4k^6
- ( ) $c^{13}k^6$
- ( ) c^4k^2
- ( ) $c^{13}k^{10}$

21. Simplify

$\frac{-3m^2n^5}{12m^{-4}n^3}$

- ( ) $-\frac{m^6n^2}{4}$
- ( ) $\frac{m^6n^2}{4}$
- ( ) $\frac{m^8n^{15}}{4}$
- ( ) $-\frac{m^8n^{15}}{4}$

22. Simplify

$\frac{1}{n^{-6}}$

- ( ) n^{-6}
- (●) n^6
- ( ) $-n^6$
- ( ) $-n^{-6}$

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pe the answer to the question in the textbox below each item. (Each question is worth two points)

23. Evaluate (53)(22)

500

24. Simplify

$\left(\frac{b^2}{b}\right)\left(\frac{b^2}{b}\right)$

b2

25. Write (107 • 103) in exponential form.