

Algebra I

Review for Quiz #5

Properties of Exponents (10.1)

Scientific Notation (10.4)

NAME: _____

DATE: _____ HOUR: _____

You will need a calculator for this assignment.

Questions 1-6 are MULTIPLE CHOICE.

1. Simplify $(6a)^3$

a. $6a^3$

b. $18a^3$

c. $216a^3$

d. $6a^4$

2. Simplify $(2p^2q^3)^2$.

a. $4p^2q^3$

b. $4p^4q^6$

c. $2p^4q^6$

d. $2p^3q^3$

3. Simplify the following.

$(-2r^2t^4)(5r^3t)$

a. $-10r^6t^4$

b. $-10r^5t^5$

c. $-10r^5t^4$

d. $10r^5t^5$

4. What does $(a^b)^c$ equal?

a. a^{b+c}

b. a^{b-c}

c. a^{bc}

d. $a^{b \cdot c}$

5. Choose the expression which is equivalent to

$(2^4)^3$

a. 2^{12}

b. 2^7

c. 2^1

d. 8^{12}

6. Which of the following is 5^3 ?

a. 15

b. 125

c. 243

d. 53

7. True or False.

$(2^5)^3 = (2^3)^5$

8. True or False.

$4c^2 = (4c)^2$

9. $(8^6)^2 = 8^n$

 n

In 10-13, simplify.

10. $(x^4)^7$ _____

11. $(12p^8)^2$ _____

12. $8a^5 \cdot 6a^3$ _____

13. Simplify the following.

$(2xy^2z^3)^2(-3xy^3z)^3$

expand () () () () () ()

simplify _____

1. For an exponential expression x^n , x is the _____ and n is the _____.
2. When multiplying expressions with the same base you can _____ the exponents.
3. A variable or constant written without an exponent has an understood exponent of _____.
4. An exponent represents repeated _____ of a base number.
5. When you raise a power to a power, you _____ the exponents.

Complete.

- | | | |
|---|--|--|
| 1. $(xy)^3 =$ | 2. $(x^2y^3z^5)^3 =$ | 3. $(xy^3z^8)^2 =$ |
| 4. $(4 \cdot 4 \cdot 4) \cdot (4 \cdot 4)$
$4^\square \cdot 4^\square = 4^\square =$ | 9. $a \cdot a \cdot b \cdot b \cdot a \cdot a = a^\square b^\square$ | 10. $a \cdot a \cdot b \cdot c \cdot c \cdot c = a^\square b^\square c^\square$ |
| 5. $(5 \cdot 5) \cdot (5 \cdot 5 \cdot 5 \cdot 5)$
$5^\square \cdot 5^\square = 5^\square =$ | 11. $m \cdot m \cdot n \cdot m \cdot n \cdot n \cdot n = m^\square n^\square$ | 12. $12 \cdot a \cdot a \cdot a \cdot a = ______ a^\square$ |
| 6. $(10 \cdot 10) \cdot (10 \cdot 10 \cdot 10)$
$10^\square \cdot 10^\square = 10^\square =$ | 13. $3 \cdot b \cdot b \cdot b = ______ b^\square$ | 14. $a \cdot a \cdot 2 \cdot 2 \cdot 2 \cdot a = 2^\square a^\square = ______ a^\square$ |
| 7. $(x \cdot x \cdot x \cdot x \cdot x) \cdot (x \cdot x \cdot x)$
$x^\square \cdot x^\square = x^\square$ | 15. $3 \cdot 2 \cdot a \cdot b \cdot c \cdot a \cdot c \cdot 4 = ______ a^\square bc^\square$ | 16. $x \cdot x \cdot 5 \cdot y \cdot 2 = ______ x^\square y$ |
| 8. $(b \cdot b \cdot b) \cdot (b \cdot b)$
$b^\square \cdot b^\square = b^\square$ | 17. $r \cdot r \cdot r \cdot 3^3 \cdot r = ______ r^\square$ | 18. $2^3 \cdot x \cdot x \cdot x \cdot 2^2 = 2^\square x^\square = ______ x^\square$ |
| | 19. $4^3 \cdot 4^3 \cdot c \cdot c \cdot c \cdot c \cdot c = 4^\square c^\square = ______ c^\square$ | 20. $2^3 \cdot 2^3 \cdot a \cdot a \cdot b \cdot b \cdot b = 2^\square a^\square b^\square = ______ a^\square b^\square$ |

SCIENTIFIC NOTATION

1. *Very large values* can be written as decimal values that are multiplied by (positive/negative) powers of 10.
2. *Very small values* can be written as decimal values that are multiplied by (positive/negative) powers of 10.
3. A **positive** value of ten means to move the decimal point to the _____.
4. A **negative** value of ten means to move the decimal point to the _____.
5. The _____ key on the TI-30X calculator allows me to enter exponents of 10.

Write each number in scientific notation.

1. 8,000,000,000,000 _____

2. 1,234,000,000 _____

3. 58,000 _____

4. 4,020,000,000 _____

5. 753,000 _____

6. 0.00000342 _____

7. 0.0003723 _____

8. 0.0000846 _____

9. 0.00256 _____

10. 0.0323 _____

Write each number in customary notation.

11. 5.73×10^4 _____

12. 5.4313×10^7 _____

13. 8.5673×10^{13} _____

14. 3.3373×10^{-2} _____

15. 5.1173×10^{-4} _____

16. 9.53473×10^8 _____

17. 8.73×10^{-3} _____

18. 2.357×10^6 _____

19. 1.998×10^{-6} _____

20. 5.0073×10^{-5} _____

Put your calculator in "scientific" mode to perform the following calculations in scientific notation.

21. $(5.73 \times 10^5) + (2.83 \times 10^5)$

23. $(5.73 \times 10^5) - (5.73 \times 10^5)$

22. $(3.7 \times 10^4) + (8.7 \times 10^2)$

24. $(2.8 \times 10^5) \div (1.4 \times 10^3)$
