

5.1 EXPONENTS: MULTIPLYING AND DIVIDING COMMON BASES

$$2 + 2 + 2 + 2 + 2$$

$$2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$$

$$X + X$$

$$X \cdot X$$

$$Y + Y + Y + Y + Y$$

$$Y \cdot Y \cdot Y \cdot Y \cdot Y$$

_____ IS SHORTHAND FOR REPEATED ADDITION

_____ IS SHORTHAND FOR REPEATED MULTIPLICATION

DEFINITION OF AN EXPONENT

$$b^n =$$

Use the definition of an exponent to write out the expanded form of each exponential expression. DO NOT SIMPLIFY.

1. $A^5 = () () () () ()$

2. $3^2 C^3 D E^2 = () () () () () () () ()$

3. $\left(\frac{2}{M}\right)^6 = () () () () () ()$

4. $(6XY^3)^3 = () () ()$

5. $(3X + 2)^2 = () ()$

DISCOVERY OF MULTIPLICATION OF LIKE BASES PROPERTY

1. $X^2 \cdot X^3 =$

() () () () ()

2. $W^2 \cdot W^2 \cdot W^2 \cdot W^2$

() () () () () () () ()

3. $N^6 \cdot N \cdot N^2$

4. $T^{12} \cdot T^{80}$

MULTIPLICATION OF LIKE BASES PROPERTY

(PRODUCT RULE)

$$b^m \cdot b^n =$$

WHEN MULTIPLYING WITH SAME BASE, _____ THE EXPONENTS

WHEN IN DOUBT, _____ IT OUT

USE THE MULTIPLICATION RULE FOR EXPONENTS TO SIMPLIFY THE FOLLOWING EXPRESSIONS

$$X^2 X^4$$

$$A A^8 A^4$$

$$(3 W^3) (-4W^5)$$

$$(5G H^3) (2G^6 H^2)$$

DISCOVERY OF DIVISION OF LIKE BASES PROPERTY

5. $\frac{X^5}{X^2} =$

6. $\frac{A^6 \cdot B^4}{A \cdot B^2}$

() () () () ()

() ()

DIVISION OF LIKE BASES PROPERTY

(QUOTIENT RULE)

$$\frac{b^m}{b^n}$$

WHEN DIVIDING WITH SAME BASE, _____ THE EXPONENTS

WHEN IN DOUBT, _____ IT OUT

USE THE DIVISION RULE FOR EXPONENTS TO SIMPLIFY THE FOLLOWING:

$$\frac{B^{10}}{B}$$

$$\frac{X^5 X^4}{X^3}$$

$$\frac{18 A^5}{6 A^2}$$

$$\frac{3 Y^5 Z^2}{15 Y^3 Z^2}$$