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1. Q) What is a Natural Number Exponent ?

A) A Natural Number Exponent is a Shorthand Notation for the Repeated Multiplication of the Same Factor. The Number that is Repeated is called the Base and the Exponent indicates the Number of times the Base is used as a Factor. An Exponent is a Number placed in a Superscript Position to the Right of another Number or Variable to indicate Repeated Multiplication :

A^n = "A is a Factor n times" and $A^3 = AAA$

2. Q) What is a FACTOR ?

A) A Factor is a Number or Polynomial the Divides a given Number or Polynomial Exactly. Thus 1, 2, 3 and 6 are all Factors of 6.

3. Q) What is the POWER of a PRODUCT ?

A) The Power of a Product is the Result of Raising a Product to a Power, such that :

$$(ab)^n = a^n b^n$$

4. Q) What is the PRODUCT RULE of Exponents ?

A) The Product Rule States that the Product of Two Powers with the Same Base is the Base Raised to the Power of the SUM of the Exponents; such that :

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$$(a^m)(a^n) = a^{m+n}$$

5. Q) What is the Zero Exponent Rule of Exponents ?

A) The Zero Exponent Rule of Exponents states that a Term Raised to the Power of Zero(0), is One(1); such that :

$$X^0 = 1$$

Where X is a REAL NUMBER and is NOT ZERO.

6. Q) What is the Negative Exponent Rule of Exponents?

A) The Negative Exponent Rule of Exponents states that a Number Raised to the Power of Negative N is Equal to 1 Over a Raised Power of Positive N; such that :

$$A^{-N} = \frac{1}{A^N}$$

7. Q) What is the POWER OF A QUOTIENT ?

A) The Power of a Quotient is the Quotient Raised to a Power; such that :

$$\left[\frac{A}{B}\right]^p = \frac{A^p}{B^p}$$

8. Q) What is the QUOTIENT RULE of Exponents ?

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A) The Quotient Rule of Exponents states that the Quotient of Two Powers with the Same Base is the Base Raised to the Power of the Difference of the Exponent in the Numerator and the Exponent in the Denominator; such that :

$$\frac{X^{Y}}{X^{Z}} = X^{Y-Z}$$

9. Q) What is the POWER RULE of Exponents ?

A) The Power Rule of Exponents states that the Exponent Raised to a Power is the Base Raised to the Power of the Product of the Exponents; such that :

$$(A^{B})^{C} = A^{BC}$$

10. Q) Why does a Number Raised to a Power of Zero Equal One(1) ?

A) $(a^{0})(a^{n}) = a^{0+n} = a^{n} = (1)(a^{n})$

$$(a^{0})(a^{n}) = (1)(a^{n})$$

$$\frac{(a^{0})(a^{n})}{a^{n}} = \frac{(1)(a^{n})}{a^{n}}$$

$(a^{0}) = 1$ **OR** $a^{0} = 1$