Introduction to Exponents

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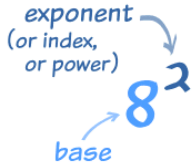
What are Exponents?



An exponent is the continued product of a number multiplied with itself a number of times. It can be written as the number raised to the power of anatural number, equal to the number of times the number is multiplied with itself.

For example: 8 × 8 can be written as 82 and it is read as 8 raised to the power 2 or second power of 8.

In 8^2, we call 8 as the base and 2 as theexponent or power.

Types of Exponents

- Positive Exponents
- Negative Exponents
- Fractional Exponents
- Zero Exponents

Each type is discussed as follows:

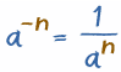
Positive Exponents

Powers withpositive integer exponents may be defined by the initial condition a1 = a and the recurrence relation an+1 = a•an

For example: 35, here as we know that 3 is the base and 5 is the exponent which is positive.

Try this:
1. If 25 = 32, then what would be 26 =?
(Answer: 64)

Negative Exponents

 A negative exponent is defined as the reciprocal of that power with a positive exponent.
a?n is the reciprocal of an.

For example: 2-3 =

Try these questions now:

1. Express (2)-4 with a positive exponent.

2. What is the value of 4-2 ?

Fractional Exponents

A fractional exponent is defined as an exponent of the form 1/n, means to take the nth root instead of multiplying or dividing. For example, 41/3 is the 3rd root(cube root) of 4.

For example: What is 91/2?

91/2 is the square root of 9 which is 3.
? 91/2 = 3
Try these questions now:

1. Evaluate: 161/4
(Answer: 2)
2. Evaluate: 1281/7
(Answer: 2)

Zero Exponents

For any number (a) not equal to 0, a0=1 or any non-zero number raised to thepower zero is equal to 1.

For example: 20 = 1

Try these questions now:

1. What is 1000?
(Answer: 1)
2. Evaluate: (200)0 + (100)0
(Answer: 2)

Now try it yourself! Should you still need any help,click here to schedule live online session with e Tutor!

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Reference Links :

- http://en.wikipedia.org/wiki/Natural_number
- http://en.wikipedia.org/wiki/Power
- http://www.purplemath.com/modules/exponent2.htm
- http://en.wikipedia.org/wiki/Exponentiation
- http://www.purplemath.com/modules/exponent5.htm
- http://wiki.answers.com/Q/What_is_zero_exponent
- http://www.youtube.com/watch?v=OGbL6QZW0Ls&feature=fvwrel
- http://en.wikipedia.org/wiki/Reciprocal
- http://en.wikipedia.org/wiki/Cube_root

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