

Form and Value Encyclopedia Article

Form and Value

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Two mathematical expressions may take different form and yet have the same value. For example, $\frac{1}{2}$ and 2 look different but are the same number. Likewise, the number 1 can be expressed as 3^0 or 10^0 .

In the decimal system, for example, the fraction $\frac{1}{2}$ is also expressed as 0.5. The word "fraction" refers to the form of a number. The form of $\frac{1}{2}$ is a fraction, but its value is 0.5, which is a decimal. Similarly, $2\frac{1}{2}$ has the form of a mixed fraction, but it can be expressed as the fraction $\frac{5}{2}$, or the decimal number 2.5.

Algebraic expressions also have form and value. The value of $3(x + 2)$ and $3x + 6$ is the same, but $3(x + 2)$ is in the **monomial** form, and $3x + 6$ is in the **binomial** form. Numbers can be also written using both monomial and binomial form.

In monomial form, even numbers are expressed as $2x$ for $x = 1, 2, 3, \dots$ generating all even numbers 2, 4, 6, ... In binomial form, even numbers are expressed as $2x + 2$ for $x = 0, 1, 2, \dots$, which again generates all the even numbers 2, 4, 6, ...

Bibliography

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