

Numerals Understood

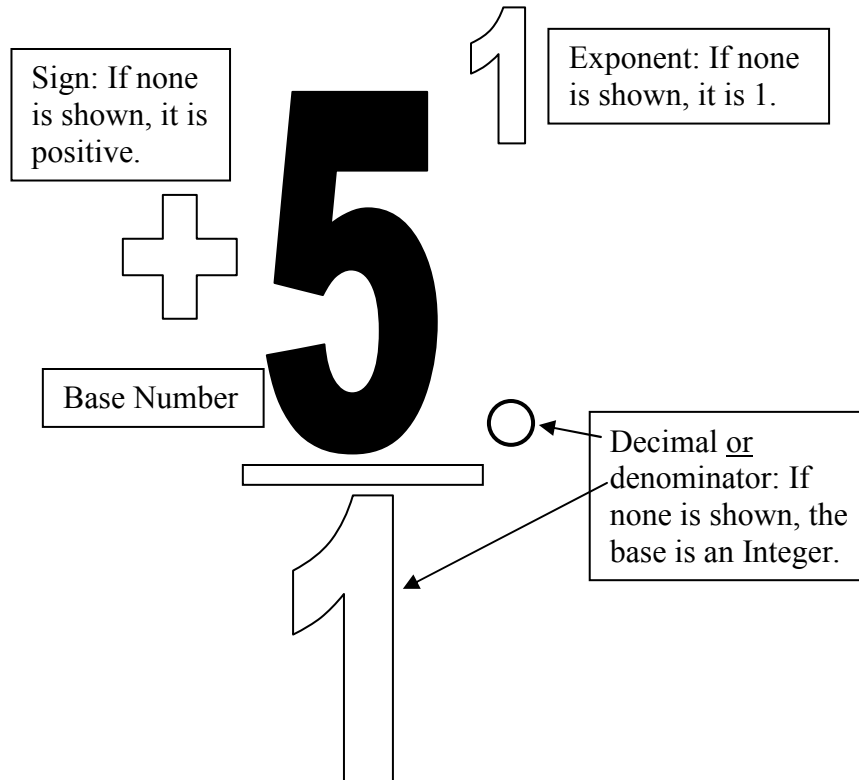
Every numeral has at least four parts.

The numeral itself is the base. It must be shown.

The numeral is either positive or negative (or zero). If it is negative, the sign must be shown. If it is positive, the sign may be shown or 'understood.'

If the numeral is an Integer, it either has an 'understood' decimal point to its immediate right, or an 'understood' denominator of 1. If it is not an Integer, then either the denominator or the decimal value must be shown.

Every numeral has an exponent. In most cases, the exponent is 1 and even if not printed, it is 'understood.' If the exponent is not 1, then it also may have several parts, either shown or understood. See "Exponent Parts" below.



Exponent Parts:

If an exponent is 1, it may be shown, but is usually understood.

If an exponent is a whole number greater than 1, it must be shown. Everything else is a special case:

Exponent is zero: Any number (except 0) raised to the zero power is equal to 1.

Exponent is negative: A negative exponent allows us to express a fraction on one line.

Basically, a negative exponent says "Wrong place!" If an Integer or numerator has a negative exponent, move the base to the denominator and change the exponent to positive. If a denominator has a negative exponent, move the number to the numerator and change the sign of the exponent.

Exponent is a fraction: Indicates a radical problem. Picture a tree – the top part branches and the roots are on the bottom. If an exponent is $\frac{1}{2}$, it indicates we must take the square root of the base. If the numerator of the exponent is not 1, it indicates the number should be raised to that power before or after finding the indicated root.