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cube of a number

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Entry type	Definition
Classification	msc 20-00
Synonym	cube
Synonym	third power
Related topic	SquareOfANumber
Related topic	PowerFunction
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Related topic	SemicubicalParabola
Defines	cube function

The *cube of a number*  $x$  is the third <http://planetmath.org/GeneralAssociativity> power  $x^3$  of  $x$ . Similarly one may speak of the cube of an element  $x$  in any semi-group with the operation denoted multiplicatively (cf. general associativity).

The volume of a cube (i.e. <http://planetmath.org/RegularPolyhedron> regular <http://planetmath.org/Hexahedron> hexahedron) with  $a$  is  $a^3$ ; hence the name.

The *cube function*  $x \mapsto x^3$  from  $\mathbb{R}$  to  $\mathbb{R}$  is injective, but not as a mapping from  $\mathbb{C}$  to  $\mathbb{C}$ ; one has  $x^3 = y^3$  always when  $\frac{x}{y} = \frac{-1 \pm i\sqrt{3}}{2}$ , the third root of unity.