## Potential

- In linguistics, the potential mood
- The mathematical study of potentials is known as potential theory; it is the study of harmonic functions on manifolds. This mathematical formulation arises from the fact that, in physics, the scalar potential is irrotational, and thus has a vanishing Laplacian — the very definition of a harmonic function.
- In physics, a potential may refer to the scalar potential or to the vector potential. In either case, it is a field defined in space, from which many important physical properties may be derived.

## Pi

π (sometimes written pi) is a mathematical constant that is the ratio of any circle's circumference to its diameter. π is approximately equal to 3.14 in the usual decimal notation. Many formulae in mathematics, science, and engineering involve π, which makes it one of the most important mathematical constants. For instance, the area of a circle is equal to π times the square of the radius of the circle.

## Squaring the Circle

Squaring the circle is a problem proposed by ancient geometers. It is the challenge of constructing a square with the same area as a given circle by using only a finite number of steps with compass and straightedge. More abstractly and more precisely, it may be taken to ask whether specified axioms of Euclidean geometry concerning the existence of lines and circles entail the existence of such a square.

In 1882, the task was proven to be impossible, as a consequence of the Lindemann–Weierstrass theorem which proves that pi (π) is a transcendental, rather than an algebraic irrational number; that is, it is not the root of any polynomial with rational coefficients. It had been known for some decades before then that if pi were transcendental then the construction would be impossible, but that pi is transcendental was not proven until 1882. Approximate squaring to any given non-perfect accuracy, in contrast, is possible in a finite number of steps, since there are rational numbers arbitrarily close to pi.

The expression "squaring the circle" is sometimes used as a metaphor for doing something logically or intuitively impossible.

The term quadrature of the circle is sometimes used synonymously, or may refer to approximate or numerical methods for finding the area of a circle.

## Source

Wikipedia; articles Potential, Pi and Squaring the Circle; November 2011.