Trigonometric Functions Problems And Solutions

The trigonometric functions most widely used in modern mathematics are the sine, the cosine, and the tangent functions. Their reciprocals are respectively the cosecant, the secant, and the cotangent functions, which are less used. Each of these six trigonometric functions has a corresponding... 704a4b7669 During the Middle Ages, the study of trigonometry continued in Islamic mathematics, by mathematicians such as al-Khwarizmi and Abu al-Wafa. The knowledge of trigonometric functions passed to Arabia from the Indian Subcontinent. It became an independent discipline in the Islamic world, where all six trigonometric... 704a4b7669 Trigonometry – branch of mathematics that studies the relationships between the sides and the angles in triangles. Trigonometry defines the trigonometric functions, which describe those relationships and have applicability to cyclical phenomena, such as waves. 704a4b7669 Another... 704a4b7669 The length of the interval over which a periodic function repeats is called its period. Any function that is not periodic is called aperiodic. 704a4b7669 An important special case is when the given data points are equally spaced, in which case the solution is given by the discrete Fourier transform. 704a4b7669 Throughout history, trigonometry has been applied in areas such as geodesy, surveying, celestial mechanics, and navigation. 704a4b7669

Hyperbolic functions Just In mathematics, hyperbolic functions are analogues of the ordinary trigonometric functions, but defined using the hyperbola rather than the circle. In mathematics, hyperbolic functions are analogues of the ordinary trigonometric functions, but defined using the hyperbola rather than the circle. Also, similarly to how the derivatives of sin(t) and cos(t) are cos(t) and –sin(t) respectively, the derivatives of sinh(t) and cosh(t) are cosh(t) and sinh(t) respectively. Just as the points (cos t, sin t) form a circle with a unit radius, the points (cosh t, sinh t) form the right half of the unit hyperbola 704a4b7669

Trigonometric interpolation mathematics, trigonometric interpolation is interpolation with trigonometric polynomials. Interpolation is the process of finding a function which goes through some given data points. This form is especially suited for interpolation of periodic functions. For trigonometric

interpolation, this function has to be a trigonometric polynomial, that is, a sum of sines and cosines of given periods. Interpolation is the process of finding a function which goes In mathematics, trigonometric interpolation is interpolation with trigonometric polynomials 704a4b7669

Closed-form expression However, the set of basic functions depends on the context. For example, if one In mathematics, an expression or formula (including equations and inequalities) is in closed form if it is formed with constants, variables, and a set of functions considered as basic and connected by arithmetic operations (+, −, ×, /, and integer powers) and function composition. For example, if one adds polynomial roots to the basic functions, the functions that have a closed form are called elementary functions. However, the set of basic functions depends on the context. nth root, exponential function, logarithm, and trigonometric functions. Commonly, the basic functions that are allowed in closed forms are nth root, exponential function, logarithm, and trigonometric functions 704a4b7669

Hyperbolic functions are used to express the angle of parallelism in hyperbolic geometry. They are used to express Lorentz boosts as hyperbolic rotations in special relativity. They also occur in the solutions of many linear differential equations (such as the equation defining a catenary), cubic equations, and Laplace's equation in Cartesian... 704a4b7669

History of trigonometry Systematic study of trigonometric functions began in Hellenistic mathematics, reaching India as part of Hellenistic astronomy. Islamic world, where all six trigonometric functions were known. Translations of Arabic and Greek texts led to trigonometry being adopted as a subject in Early study of triangles can be traced to Egyptian mathematics (Rhind Mathematical Papyrus) and Babylonian mathematics during the 2nd millennium BC. In Indian astronomy, the study of trigonometric functions flourished in the Gupta period, especially due to Aryabhata (sixth century AD), who discovered the sine function, cosine function, and versine function 704a4b7669

Modern computers and pocket calculators now generate trigonometric function values on demand, using special libraries of mathematical code. Often, these libraries use pre-calculated tables internally, and compute the required value by using an appropriate interpolation method. Interpolation of simple look-up tables of trigonometric functions is still used in computer graphics, where only modest accuracy may be required and speed is often paramount. 704a4b7669 The closed-form problem arises when new ways are introduced for specifying mathematical objects, such as limits, series, and integrals: given an object specified with such tools, a natural... 704a4b7669

Outline of trigonometry sides and the angles in triangles. Trigonometry defines the trigonometric functions, which describe those relationships and have applicability to cyclical The following outline is provided as an overview of and topical guide to trigonometry: 704a4b7669

Periodic function For example, the trigonometric functions, which are used to describe waves and other repeating phenomena, are periodic. Many aspects of the natural world have periodic behavior, such as the phases of the Moon, the swinging of a pendulum, and the beating of a heart. For example, the trigonometric functions, which are used to describe waves and other A periodic function is a function that repeats its values at regular intervals. function is a function that repeats its values at regular intervals 704a4b7669

Trigonometry In particular, the trigonometric functions relate the angles of a right triangle with ratios of its side lengths. Throughout history, trigonometry has been applied in areas Trigonometry (from Ancient Greek τρίγωνον (trígōnon) 'triangle' and μέτρον (métron) 'measure') is a branch of mathematics concerned with relationships between angles and side lengths of triangles. The field emerged in the Hellenistic world during the 3rd century BC from applications of geometry to astronomical studies. The Greeks focused on the calculation of chords, while mathematicians in India created the earliest-known tables of values for trigonometric ratios (also called trigonometric functions) such as sine. tables of values for trigonometric ratios (also called trigonometric functions) such as sine 704a4b7669

Trigonometric functions They are widely used in all sciences that are related to geometry, such as navigation, solid mechanics, celestial mechanics, geodesy, and many others. mathematics, the trigonometric functions (also called circular functions, angle functions or goniometric functions) are real functions which relate an In mathematics, the trigonometric functions (also called circular functions, angle functions or goniometric functions) are real functions which relate an angle of a right-angled triangle to ratios of two side lengths. They are among the simplest periodic functions, and as such are also widely used for studying periodic phenomena through Fourier analysis 704a4b7669

Uses of trigonometry mathematical topics of Fourier series and Fourier transforms rely heavily on knowledge of trigonometric functions and find application in a number of areas Amongst the lay public of non-mathematicians and non-scientists, trigonometry is known chiefly for its application to measurement problems, yet is also often used in ways that are far more subtle, such as its place in the theory of music; still other uses are more technical, such as in number theory. The mathematical topics of Fourier series and Fourier

transforms rely heavily on knowledge of trigonometric functions and find application in a number of areas, including statistics 704a4b7669

Trigonometric tables mathematics, tables of trigonometric functions are useful in a number of areas. Before the existence of pocket calculators, trigonometric tables were essential for navigation, science and engineering. Before the existence of pocket calculators, trigonometric tables were essential In mathematics, tables of trigonometric functions are useful in a number of areas. The calculation of mathematical tables was an important area of study, which led to the development of the first mechanical computing devices 704a4b7669

Trigonometry is known for its many identities... 704a4b7669