Properties Of Median In Triangle

Right triangle A right triangle or right-angled triangle, sometimes called an orthogonal triangle or rectangular triangle, is a triangle in which two sides are perpendicular A right triangle or right-angled triangle, sometimes called an orthogonal triangle or rectangular triangle, is a triangle in which two sides are perpendicular, forming a right angle (1⁄4 turn or 90 degrees) d9a0f91dee

The more general k-median problem asks for the location of k cluster centers minimizing the sum of L2 distances from each sample point to its nearest center. d9a0f91dee In all triangles, the centroid—the intersection of the medians, each of which connects a vertex with the midpoint of the opposite side—and the incenter—the center of the circle that is internally tangent to all three sides—are in the interior of the triangle. However, while the orthocenter and the circumcenter are in an acute triangle's interior, they are exterior to an obtuse triangle. d9a0f91dee The side lengths of an automedian triangle satisfy the formula d9a0f91dee

Triangle center The definitions and properties of tens of thousands of triangle centers have been collected in the Encyclopedia of Triangle Centers In geometry, a triangle center or triangle centre is a point in the triangle's plane

that is in some sense in the middle of the triangle. all other triangles. For example, the centroid, circumcenter, incenter and orthocenter were familiar to the ancient Greeks, and can be obtained by simple constructions d9a0f91dee

== Properties == d9a0f91dee == History == d9a0f91dee

Automedian triangle The three medians of an automedian triangle may be translated to form the sides of a second triangle that is similar to the first one. In plane geometry, an automedian triangle is a triangle in which the lengths of the three medians (the line segments connecting each vertex to the midpoint In plane geometry, an automedian triangle is a triangle in which the lengths of the three medians (the line segments connecting each vertex to the midpoint of the opposite side) are proportional to the lengths of the three sides, in a different order d9a0f91dee

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Median (geometry) In the case of isosceles and equilateral triangles, a median bisects any angle at a vertex whose two adjacent sides are equal in length. Every triangle has exactly three medians, one from each vertex, and they all intersect at the triangle's centroid. Every triangle In geometry, a median of a triangle is a line segment joining a vertex to the midpoint of the opposite side, thus bisecting that side. In geometry, a median of a triangle is a line segment joining a vertex to the midpoint of the opposite side, thus bisecting that side d9a0f91dee

Even... d9a0f91dee The concept of a median extends to tetrahedra. d9a0f91dee The two tessellation's instances are the triangular tiling where six equilateral... d9a0f91dee

Geometric median It is also known as the spatial median, Euclidean minisum point, Torricelli point, or 1-median. It provides a measure of central tendency in higher dimensions and it is a standard problem in facility location, i. This generalizes the median, which has the property of minimizing the sum of distances or absolute differences for one-dimensional data. point of the triangle formed by the three sample points. , locating a facility to minimize the cost of transportation. e. The geometric median may in turn be generalized to the problem of minimizing the sum of weighted In geometry, the geometric median of a discrete point set in a Euclidean space is the point minimizing the sum of distances to the sample points d9a0f91dee

== Characterization == d9a0f91dee

Triangle Sometimes an arbitrary edge is chosen to be the base, in which case the opposite vertex is called the apex; the shortest segment between the base and apex is the height. It is one of the basic shapes in geometry and the simplest of polygons A triangle or trigon is a polygon consisting of three sides connected at three corners. It is one of the basic shapes in geometry and the simplest of polygons. The triangle is a plane figure and its interior is a planar region. triangle or trigon is a polygon consisting of three sides connected at three corners. A triangle has three

internal angles, each one bounded by a pair of adjacent sides; the sum of angles of a triangle always equals a straight angle (180 degrees or π radians). The corners, also called vertices, are zero-dimensional points while the sides connecting them, also called edges, are one-dimensional line segments. The area of a triangle equals one-half the product of height and base length d9a0f91dee

== Relation to center of mass == d9a0f91dee

Median graph In graph theory, a division of mathematics, a median graph is an undirected graph in which every three vertices a {\displaystyle a} , b {\displaystyle In graph theory, a division of mathematics, a median graph is an undirected graph in which every three vertices d9a0f91dee

In Euclidean geometry, any two points determine a unique line segment situated within a unique straight line, and any three points that do not all lie on the same straight line determine a unique triangle situated within a unique flat plane. More generally, four points in three-dimensional Euclidean space determine a solid figure called tetrahedron. d9a0f91dee In non-Euclidean geometries, three "straight" segments... d9a0f91dee Each median of a triangle passes through the triangle's centroid, which is the center of mass of an infinitely thin object of uniform density coinciding with the triangle. Thus, the object would balance at the intersection point of the medians. The centroid is twice as close along any median to the side that the median intersects as it is to the vertex it emanates from.

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Acute and obtuse triangles not right triangles because they do not have any right angles (90°). In all triangles, the centroid—the intersection of the medians, each of which connects An acute triangle (or acute-angled triangle) is a triangle with three acute angles (less than 90°). An obtuse triangle (or obtuse-angled triangle) is a triangle with one obtuse angle (greater than 90°) and two acute angles. Since a triangle's angles must sum to 180° in Euclidean geometry, no Euclidean triangle can have more than one obtuse angle d9a0f91dee

The orthocenter is the intersection point of the triangle's three altitudes, each of which perpendicularly connects a side to the opposite vertex. In the case of an acute triangle, all three of these segments lie entirely in the triangle's interior, and so they intersect in the interior... d9a0f91dee For an equilateral triangle, all triangle centers coincide at its centroid. However, the triangle centers generally take different positions from each other on all other triangles. The definitions and properties of tens of thousands of triangle centers have been collected in the Encyclopedia of Triangle Centers. d9a0f91dee Acute and obtuse triangles are the two different types of oblique triangles—triangles that are not right triangles because they do not have any right angles (90°). d9a0f91dee c d9a0f91dee The special case of the problem for three points in the plane (that is, m = 3 and n = 2 in the definition below) is sometimes also known as Fermat's problem; it arises in the construction...

d9a0f91dee The geometric median is an important estimator of location in statistics, because it minimizes the sum of the L2 distances of the samples. It is to be compared to the mean, which minimizes the sum of the squared L2 distances; and to the coordinate-wise median which minimizes the sum of the L1 distances. d9a0f91dee == Properties == d9a0f91dee Applications of an equilateral triangle are in popular culture, architecture, and other science fields such as the resemblance of the trigonal planar molecular geometry in stereochemistry, ternary plots in several fields, Einthoven's triangle in electrocardiography, as a solution of the Thomson problem and of the celestial mechanics's three-body problem, the Laser Interferometer Space Antenna's three identical observatory of gravitational waves spacecraft, and triangulation concept in satellite geodesy. d9a0f91dee Each side of the medial triangle is called a midsegment (or midline). In general, a midsegment of a triangle is a line segment which joins the midpoints of two sides of the triangle. It is parallel to the third side and has a length equal to half the length of the third side. d9a0f91dee Each of these classical centers has the property that it is invariant (more precisely equivariant) under similarity transformations. In other words, for any triangle and any similarity transformation (such as a rotation, reflection, dilation, or translation), the center of the transformed triangle is the same point as the transformed center of the original triangle. d9a0f91dee

Medial triangle In Euclidean geometry, the medial triangle

or midpoint triangle of a triangle △ABC is the triangle with vertices at the midpoints of the triangle's sides In Euclidean geometry, the medial triangle or midpoint triangle of a triangle △ABC is the triangle with vertices at the midpoints of the triangle's sides AB, AC, and BC. The medial triangle is not the same thing as the median triangle, which is the triangle whose sides have the same lengths as the medians of △ABC. It is the n = 3 case of the midpoint polygon of a polygon with n sides d9a0f91dee

This invariance is the defining property of a triangle center. It rules out other well-known points such as the Brocard points which are not invariant under reflection and so fail to qualify as triangle centers. d9a0f91dee

Equilateral triangle It is a special case of an isosceles triangle by modern definition. triangle is a triangle with three sides of equal length and three equal angles. Its area is a quarter of the square root of three multiplied with its squared side length. It is a regular polygon, occasionally known as the regular triangle. Its appearance is unchanged by three reflection lines, each of which passing through a vertex to the midpoint of the opposite edge, and three rotations around its centroid (0°, 120°, 240°). It is a regular polygon, occasionally known as the regular triangle. Its internal angle is 60° in degree or π/3 in radian. Its perimeter is three times the side length. An equilateral triangle is a triangle with three sides of equal length and three equal angles d9a0f91dee

The side opposite to the right angle is called the hypotenuse (side d9a0f91dee

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