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Cartesian coordinate system pdf

Coordinate coordinate systems are used to locate points in a plane using two vertical lines. Points are represented in the form of two-dimensional coordinates (x, y) for the x-axis and the y-axis. In this article, you will learn what the Cartesian coordinate system is. To understand the need for coordinate geometry, let us consider an example, assuming that Rina is a girl in your class and she sits in the third column and the fifth row. And this position can be expressed as (3, 5). Two axes – the vertical axis and the vertical axis are the reference lines of a rectangular system that measures distance. They are retrieved in the same way that they take two numbered line: XX' and YY'. Place XX' horizontally and write the same number as you write to the number line. Similarly, place YY' vertically and write the numbers in the same way that you write to a number line. Joins both lines in such a way that the two lines intersect at zero or at the origin. The horizontal line XX' is called the x-axis, and the vertical line YY' is called the y-axis. The crosses of XX' and YY' are called origins and are indicated by O. Because the positive numbers are in the OX and OY directions, OX and OY are called the positive directions of the X and y axes, respectively. Similarly, OX' and OY' are called the negative directions of the x and y axes, respectively. In addition, the axis divides the plane into four parts, and these four parts are called quadrants (quarter parts). Therefore, there are four quadrants with numbers I, II, III and IV counterclockwise from OX. Therefore, a plane consists of axes and quadrants. Therefore, a plane is called an orthogonaed plane, a coordinate plane, or an x-y plane. An axis is called a coordinate axis. The Cartesian coordinate system in one-dimensional space consists of lines. Select point O, the origin on the line, and the units of line length and direction. The direction selects the positive and negative lines of the two half-lines determined by O. Each point P of a line can be specified by the distance from O taken by a negative or positive sign. A line with the selected Cartesian system is called a number line. Every real number has a unique place on the line. All points in a number line can be interpreted as numbers. Important: The above shows a two-dimensional system. For 3D systems, there are three axes perpendicular to each other: x, y, and z. You can generalize to create n coordinates for any point in N-dimensional Euclidean space. The X coordinates of the Horizontal axis and coordinates point are the vertical distance from the y-axis measured along the X axis and are called Abscisa. The y-coordinate of a point is the perpendicular distance from the X axis measured along the Y axis, called Orderate. Write the coordinates of a point inThe coordinate face, the x coordinate comes first, and then the y coordinate. The coordinates are placed in parentheses as (x,y). Coordinates uniquely describe points in a plane. This means (3,1≠ (1,3) or general (x, y≠ (y, x). Consider the point (5,6) in the example. Here absa =5 and vertical coordinate = 6. See also 3D Geometry Type Coordinate System Type Problem Example 1: Find the position below a point on the Cartesian coordinate system. It also mentions the point to which the quadrant points belong. (i) (2, 3) (ii) (-3, 1) (iii) (-1.5, -2.5) (iv) Origin Solution: Description: (i) Point (2,3) Mark with a green point in the graph. It belongs to quadrant I because the horizontal distance is 2 units in the positive x direction, the vertical distance from the reference horizontal axis is 3 units in the positive y direction, and therefore the point is shown as (2,3) in the coordinate format, and both are positive. Similarly, you can extend the same idea to other points marked in the chart. (ii) For points marked in red, the horizontal distance is three units in the negative x direction, and the vertical distance from the reference horizontal axis is one unit of the positive y-axis, indicating the point as (-3,1) in coordinate form. Because the X axis is negative and the y-axis is positive, it belongs to quadrant II. (iii) For points marked in blue, the distance between horizontal and vertical units indicates both 1.5 and 2.5 negatively, respectively. Therefore, we have a point of quadrant III (-1.5.-2.5). (iv) The origin is the intersection of the horizontal axis and the vertical axis (0, 0). It does not belong to the quadrant. Example 2: If the vertices P, Q, and R of the triangle PQR are rational points, then among the following points of the triangle PQR, there is always a rational point (A) center C) center C) orthogonal center D) positive center (rational point is a point where both of its coordinates are rational numbers.) Solution: A=(x1,y2,y2), C33,A=({{x}_{1}},\,\,\,{1}\,\,B=({{x}{2}},\,\,{,{ y},{{2},{,{,{,{,{,c={x {3}},\,\,\,{,{,\,{,{,{,{,\,{,\,{,\,{,) {y}_{3}}), A=(x1,y1), B=(x2,y2),C=(x3,y3),x1,{x}{1}},\,{{y},{1},x1,y1,, etc., are rational numbers after Σx1. Σy1\Sigma {{x}_{1}},\,\,\,\Sigma {{y}_{1}}Σx1,Σy1 is also reasonable. Therefore, the coordinates of the cent gravity (Σx13, Σy13)\left (\frac{{x}_{1}}{3}, \,\frac{\sigma{{y}\{1}{3} \right) (3x1,3Σy1) are reasonable. AB=c=(x1-x2)2+(y1-y2)2,cAB=c=c={{{{x}{1}}-{{x}{2}}}}}{2} {2}}} {{{{{{y}_{1}}{{{2} y}}{2}},\,cab=c=(x1 -x2)2+(y1 -y2)2, c may or may not be reasonable, form p.\sqrt{p}.p could be an unreasonable number. So the center coordinates (Σax1Σa, Σay1Σa) \ left (\frac{\sigmaa{{x}_{1}}}{\sigmaa}, \\, \frac{\sigma\sigmaa} \right) (ΣaΣax1, ΣaΣay1) may or may not be reasonable. (α, β) (\α\\, \\\β) If (α,β) is a peri-center or positive coordinate center, a and b can be found by solving α by a rational coefficient with two linear equations β\α,\\\βα,β. Therefore α β\α\\, \βα, β must be reasonable numbers. Example 3: A (2,-3) and B (-2,1) are the vertices of the triangle ABC. If the center of gravity of this triangle moves on a line of 2x + 3y = 1, vertex C has a _____ line. Resolution: Set the third vertex to \({x}_{1}},\,{{y}_{1}}) and then center of gravity (G)≡(x1+2-23). y1-3+13) (G)\equiv \left (\frac{{{x}_{1}}+2-2}{3},\frac{{{{1} y}\3+1}{3}\right)(G)≡(3x1 +1 2-2,3y1 -3+1) y1-23)G\,\Left (\frac{{{{x}_{1}}{3},\,\frac{{{{y}_{1}}-2}{3}\right\Right)G(3x1)G(3x1 ,3y1 -2) Given, the center of gravity of the triangle moves on the line 2x +3y =1 Hence 2(x1/3)+3(y1-2)/3 = 1:2x1+3y1=92{x{x}{1}}+3{y}_{1}}=92 x1 +3y1 =9 Locus (x1, y1)({{x}_{1}},{{y}_{1}})(x1,y1) is 2x +3y=9.2x+3y=9.9. Example 4: One of the vertices of the square is the origin, and the adjacent side of the square matches the positive axis. Squares are in the first quadrant: vertices (A) (0, 5) (5, 0) (C) (-5, -5) (D) (0, 0) solutions. Therefore, (-5, -5) is not a vertex. Therefore, option C is the answer. The Cafe categorical variable › Cartesian coordinate system is a system used to display specified points defined in a plane by a set of numeric coordinates. Coordinates represent the distance of a point from two fixed vertical lines, called axes (axis multiples). Both axes measure points in units of the same length and extend over real n spaces. The point at which the two vertical axes intersect is called the origin and is defined by an ordered pair (0, 0). The vertical axis is defined as the y-axis, and the horizontal axis is defined as the x-axis. The SOURCE Cartesian coordinate system was first invented by Rene Descartes in the 17th century. The system revolutionized mathematics, providing a link between Euclidean geometry and alcathes in Greece. For example, geometric shapes such as circles can be defined in cartesian systems with Cartesian equations. Placing a circle with a radius of 2 at the origin of the Cartesian system includes points where X coordinates and Y meet equation x2 + y2 = 4. In other words, if it consists of points that can be defined by two axes, the geometric shapes appear above the Cartesian system. The source, however, has several dimensions of the Cartesian coordinate system. A one-dimensional system can be described simply as a number line, and all real numbers are defined by the unique position of the ordered continuity row. 2D Cartesian coordinatesis a generally understood iteration, with the X and Y axes defined, and points on the system defined by a pair of ordered numbers. If a point is defined in three-dimensional space, the orthogonal coordinate system is defined by the X, Y, and Z axes. Each axis intersects a common origin and is perpendicular to each other. However, in three-dimensional space, points are defined not only by the X and Y axes, but also by their distance from the other two axes defined by the Z axis. The standard notation for three-dimensional points is (x, y, z). The standard two-dimensional orthogonal coordinate system divides the plane into four infinite regions called source regions. Quadrants are often indicated by Roman numerals from 1 to 4, defined counterclockwise, and the first quadrant is defined as a space in the upper right, right direction. Thus, the three-dimensional system divides the plane into eight areas instead of the four known as the eighth region. A simplely understood example of the use of Cartesian coordinates is a standard map of the earth. If latitude and longitude are defined along the X and Y axes, and the earth's radius is defined along the Z-axis, any point on the earth can be defined in three-dimensional geophysal coordinates. This method of geographical positioning is the basis of modern GPS navigation. It is important to note that the effectiveness of the Cartesian coordinate system depends almost entirely on the universally accepted definition of the units defined along each Cartesian axis. For example, if each country defines the global origin differently, GPS will not work at all. Currently, it is defined by the gravitational center of the Earth. Earth.

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