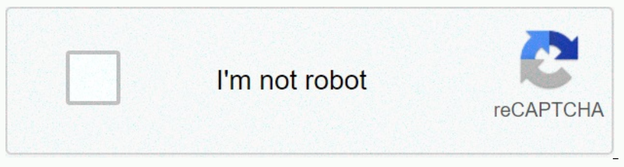

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Coordinate plane definition geometry

coordinate plane or Carteplane • a plane containing two perpendicular axes (x and y) that intersect at a point called the origin (0.0). • position is denoted by pairs of coordinates, e.g. (2, 4). EXAMPLE: In order to continue enjoying our site, we ask that you confirm your identity as a human being. Thank you very much for your cooperation. Video Definition Theorem Converse Example Today's geography quiz: what do these cities have in common? Barcelona, Spain; Savannah, Georgia; Toronto, Ontario; Portland, Oregon; and New York, New York are all listed with streets after a grid plane. They are easier to navigate (either on foot or in a car) as cities with haphazard street plans. A coordinate plane, or Cartegrid, is a grid plane. René Descartes and Flugan The French mathematician and philosopher René Descartes from the 17th century is said to have invented the coordinate system when, while lying in bed, he placed a fly in his bedroom ceiling. He wondered how he could describe its movement, so he used a corner of his bedroom as an origin, or starting point, and imagined perpendicular, regularly spaced number lines forming a grid. Coordinating Plane Definition We are fortunate that the bedroom ceiling of Descartes was smooth and flat; it made a plane, or completely flat surface, for the fly to crawl on and inspire one of the greatest mathematicians to create one of the greatest mathematical tools. A coordinate plane is an arrangement of perpendicular, regularly spaced number lines, such as a fishing net, laid out on a completely flat surface extending forever in width and length, without thickness. Like a fishing net, the net of a coordinate plan lets a lot of things let through, but it has everything that falls on the lines themselves. Things like circles, sloping lines, polygons, and sometimes a fly. Going on a coordinate plan Renés mouche domestique, who lives in a mathematician's house, was clearly mathematically inclined and always walked in straight lines. Being a fly, it also tended to move a little erratic, with two steps backwards for each step forward. It had a feeling of negative numbers, like this: [insert number line from -10 to +10] La mouche de René can start at 0, move to +1 and then return to -1. The next added petite mouche starts at -1, advances to 0, and backs up to -2. But what if the fly turns 90° and heads off in a different direction? We need another number line, perpendicular to our first number line, to map her movement. We line up 0 on each number line, and can now measure her movement in two directions. [inserting two crossed number lines] In order to clearly describe the movement of the fly, we need to decide which direction we will mention first, and which we will mention in second place. Each line of speech is an axis, with the x-axis going left to right and the y-axis going up to down. The value of the X-axis is always given first, of the value of the y-axis. For example, the middle of our number lines (0,0), and two steps to the left is (-2, 0). The x and y values form a coordinate pair, indicating a unique position on the coordinate plane. If we wanted to be imprecise, we could roughly appreciate movement with only the two intersecting, perpendicular number lines. Mathematicians are not fond of unprecision, however, so we use several number lines in both directions: [insert coordinate grid] Now we can say the fly, starting (0,0), known as the origin, is moved to (1, 2). The fly moved a drive to the right, and two units up, like this: [insert coordinate grid marked, perhaps with a fly, on (1, 2)] Vocabulary of coordinate plan to speak exactly about location on coordinate plane, we use specialized vocabulary. We have already seen that the two number lines are called the x-axis (horizontal) and the y-axis (vertical). We know that (0.0) is called the origin. Other terms are handy to know as well. Scale The number lines can contain numbers of any range. You can have two coordinate grids side by side, one with an x-axis and y-axis starting from -20 and extending to +20. The second coordinate grid can start at -1,000 and reach +1,000. The two different ranges are the scales of the grids. In a single coordinate plane, the x axis can be a scale (say-10 to +10) and the y-axis can be a different scale (say, -100 to +100). This allows information to be displayed compactly and graphically that would otherwise need huge grids of mostly wasted space. Quadrants The original intersecting number lines divided the coordinate plane into four areas, called quadrants. These are numbered, by tradition, using Roman numerals in counterclockwise direction starting with the upper right quadrant, called quadrant I. This is the quadrant with only positive values for both the x-axis and the y-axis. Quadrant II, on the left, has negative x-values and positive y-values. Quadrant III has both negative x and y values, while Quadrant IV has negative y-values and positive x-values. Nothing prevents one line or flat shape from starting in one quadrant and continues into another. A circle, for example, could have a center at, say, (1, 3) and a radius of 10 units, making it possible to swipe through all four quadrants. Intercept When a line crosses either the x-axis or the y-axis, the point is called either x-intercept or y-intercept. An intersection always occurs when the value of the crossed axis is o: [insert straight line coordinate plane that captures at (5, 0) and (0,3); mark both points with each coordinate pair] Here the line captures the y-axis at 3, along the x-axis value of 0, and captures the x-axis at 5, along the value of the y-axis of 0. Lesson Summary Now that you have studied the lesson, you can identify and define a coordinate plane, relate number lines to a coordinate plane, and and define terms used in coordinate planes, including axis, coordinate pair, origin, scale, quadrant, and intersection. Next lesson: Geometric Probability Online maps have made life easy for us. They help us navigate from home to school, from school to the ice cream shop, or even to the mall. As you read a map, you automatically understand the basics of point coordinates. This page will give you a brief overview of marking points on a coordinate plane and find out the coordinates of points along with examples. Let's learn more about coordinate planes, coordinate plane definition, positive coordinate plane, coordinate example, coordinate plane grid example, math coordinate plane and coordinate plane graph. Check-out the interactive simulations to know more about the lesson and try to solve some interactive questions at the end of the page. Learn all about Coordinate Plane in just 10 minutes! A coordinate plane is a two-dimensional surface formed by two number lines. They are formed when a horizontal line called the X axis and a vertical line called a Y axis intersect at a point called origin. The numbers on a coordinate grid are used to locate points. A coordinate plane can be used for graph points, lines, and more. It acts as a map and provides precise directions from one point to another. The coordinate plane definition is as follows: A coordinate plane, also known as a rectangular coordinate plane grid, is a two-dimensional plane formed by the intersection of a vertical line called the Y axis and a horizontal line called the X axis. Let's explore the simulation below. Move the slider and observe the changes in the coordinates and quadrants. A coordinate graph, sometimes called a coordinate plane, consists of two number lines called axes that go perpendicular to each other. Coordinates are a set of two values that locate a specific point on a coordinate plane's grid, better known as a coordinate plane. A point in a coordinate plane is named by its ordered pair in the form (x, y), which is written in parentheses, corresponding to the X coordinate and the Y coordinate.These coordinates can be positive, zero, or negative, depending on the location of the point in each quadrant. Quadrants • First Quadrant: x > 0, y > 0 • Second Quadrant: x < 0, y=>0 • Third Quadrant: x <0, y=</0,> < 0 • 0 • = fourth= quadrant:= x=>0, y < 0 The first quadrant (+) known as the positive coordinates quadrant, is represented by the Roman -, - numeral III The fourth quadrant (+, -) is represented by the Roman numeral IV The coordinates of any point are enclosed in brackets Step 1: Locate point the point. Step 2: Find the= first= quadrant= (+,= +) known= as= the= coordinates= quadrant, is= represented= by= the= roman= numeral= i= the= second= quadrant= (-,= +) is= represented= by= the= roman= numeral= ii= the= third= quadrant= (-,= -) is= represented= by= the= roman= numeral= iii= the= fourth= quadrant= (+,= -) is= represented= by= the= roman= numeral= iv= the= coordinates= of= any= point= are= enclosed= in brackets= step= 1:= locate the= point.= step= 2:= find the=></ 0 The first quadrant (+, +) known as the positive coordinates quadrant, is represented by the Roman numeral I The second quadrant (-, +) is represented by the Roman numeral II The third quadrant (-, -) is represented by the Roman numeral III The fourth quadrant (+, -) is represented by the Roman numeral IV The coordinates of any point are enclosed in brackets Step 1: Locate the point. Step 2: Find the > </ 0> </ 0,> 0,> looking at the characters on its X and Y coordinates. Step 3: Find the X coordinate or abscissa of the point by reading the number of units point is to the right/left of the origin along the X axis. Step 4: Find the Y coordinate or period of the point by reading the number of units that the point is above/below the origin along the Y axis. Let's look at the coordinate plane example. Look at the figure shown below. Step 1: Note the blue dot on the coordinate graph. Step 2: It's in the second quadrant. Step 3: The point is 3 units away from the origin along the negative X axis. Step 4: The point is 2 units away from the origin along the positive Y axis. Thus, the point on the graph has coordinates (-3, 2). How to draw a point in the coordinate plane? Let's take an example of point P = (5.6) Step 1: Draw two perpendicular, X-axis and Y axis. Step 2: Start from the origin. Move 5 units to the right, along the positive X axis. Step 3: Move 6 units up, along the positive Y axis. Step 4: Select the intersection. Mark it as (5, 6). Note that P is in the first quadrant. Also, this is known as the positive coordinating plane as the value of both coordinates of any point in this quadrant will be positive. There are a few coordinate chart examples in the section given below. Let's take a look. Let's help Olivia and Jane draw the following points in the Cartesian plane: A (2,5, 3,5) B (- 2, 4) C (6,5, 1) D (4, - 2,2) Solution A and C are in the first quadrant. B is in the second quadrant. D is in the fourth quadrant. Here are some points plotted in a coordinate plane: A (1.2) B (3, -2) C (-3, -3) D (-4, 2) E (-1, 2) F (3.0) G (0, -3) Look at the points plotted in the below graph and answer the following questions: a) In which quadrants do C, D and E lie? b) What are the points in either the first or fourth quadrants? c) What are the points on one of the two axes? Solution (a) D and E are located in the second quadrant, and C is located in the third quadrant. b) A is located in the first quadrant, and B is located in the fourth quadrant. c) F is located on the positive side of the X axis, and G is located on the negative side of the Y axis. One person throws two rolling dice at once. Let the numbers showing Die - 1 and Die - 2 be represented by x and y respectively. After each roll, the point P(x, y) is drawn in the plane. Draw all possible positions P, and select the positions for which the sum of x and y is 8. Solution Note that on each die, we can have 6 numbers (integers from 1 to 6). If you combine the possible numbers from both dice, you have 36 pairs. Now, the pairs for which the sum of x and y are 8 are: (2.6), (3.5), (4.4), (5.3), (6.2) In the following figure, 36 total pairs have been drawn, and these 5 pairs have been marked: Joseph wants to draw five points in Cartesian planes for which abscissa and ordinate are alike. Let's get him out of here. Solution Let's draw the following five points: (-2, -2), (-1, -1), (0.0), (1.1), (2.2) The graph is shown below: You can note that these five points are on the same straight line. Take a look at the graph below. Can you see a point P? What is the exact location of point P on the coordinate plane? Solution Point P is located on the Y axis of the coordinate plane. The coordinates of this point are (0.4) Here are some activities for you to practice. Select/Type your response and click the Check Answer button to see the results. Find out some three points that lie in the positive coordinating plane and for which abscissa and ordininate are equal and also non-negative. We hope you enjoyed learning about Coordinate Plane with the simulations and practice questions. Now you will be able to easily solve problems on coordinate planes, recall the coordinate plane definition, positive coordinate plane, coordinate example, coordinate plan examples, coordinate plane grids, math coordinate planes and coordinate plane graph, along with coordinate examples. About Cuemath At Cuemath, our team of math experts is dedicated to making learning fun for our favorite readers, the students! Through an interactive and engaging learning-teaching-learning strategy, teachers explore all angles of a subject. Be it spreadsheets, online classes, doubt sessions, or any other form of relationship, it's the logical thinking and smart learning strategy that we, at Cuemath, believe in. Frequently asked questions (FREQUENTLY) Coordinate planes include the axes (X axis and Y axis), the origin (0.0), and the four quadrants. The intersection of two axes of the coordinate plane is the origin of the coordinate plane. The coordinates of the origin are (0, 0). The XY coordinate is a two-dimensional plane with coordinate axes, the X axis and the Y axis, perpendicular to each other. Other.

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