071 The coordinate plane

410

Characters:

T $Tutor

S $Strong

W $Weak

T We have learned a lot of new material and reviewed what we already know; now it’s time to practice.Mark points with the given coordinates on the coordinate plane.

T Let us plot these points on a new coordinate plane.

[Can strong students work independently? Is it possible that these questions are provided after students work independently based on algorithm but failed, possibly for average students or weak students?T:Sure]

T Let’s start with the point М. How do we read this notation?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T The point М with coordinates 1 and 4.

T Use the algorithm.Name the first coordinate (abscissa) of the point М.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 1

[Is this question necessary? If students already refer the algorithm, then they will take the first coordinate is related to x-axis? T: This lesson is still the first lesson on the coordinate plane, so students might not be very practice more , may not be familiar with algorithm yet]

T On what axis will you separate it off?.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T On the х axis

T By how many unit segments and in which direction do we need to move on the х axis?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 1 unit segment to the right.

[Necessary question? or review from the coordinate line?T: not so necessary, student already know the direction and sign relation. Depending on the given coordinate system with or without numbering. Usually sometimes only give 0,1, and -1]

T Why to the right?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Because 1 is a positive number.

T Let’s not mark this point with a letter.

T How shall we plot a line through this point?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Perpendicular to the х axis.

T Correct, perpendicular to the х axis. On the grid, it would be sufficient to plot a vertical line along the grid. .

T Name the second coordinate (ordinate) of the point М.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 4

T On what axis shall we separate it off?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T On the у axis.

T In which direction and how many unit segments do we have to go along the y axis to mark this point?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 4 unit segments up.

T Why up?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Because 4 is a positive number.

T This point we will not mark with any letter, either.

T What shall we plot next?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T We will plot a line perpendicular to the у axis.

T Correct, perpendicular to the у axis. And because we have a grid, we can just extend the horizontal line along the grid. .

T Where will the M point be?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Where these lines cross, we’ll find the point М.

T Let us mark a point at the intersection of these lines and call it M, this is our ultimate point.

T Who wants to plot the next line at the board?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T .

T Read the notation.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Point N with coordinates -2 and 5.

T Name the coordinate х of this point.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -2

T On which axis will you mark the number -2?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T On the х axis.

T Where will you mark it?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T To the left from the point О at the distance of 2 unit segments.

T What’s next?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T I will plot a vertical line through this point.

T Correct, this line will be perpendicular to the х axis.

T What will you separate off on the у axis?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T On the y axis, I will mark the number 5.

T Where will you mark it?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Up from the point О by 5 unit segments.

T Now what do we do?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T I will plot a line, perpendicular to the у axis.

T This line will go horizontally along the grid.

T Where will the N point be located?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T The place where these lines intersect, will be the point N.

T Let us mark the point К (-3; 3).

T Name the coordinate x of the point К.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -3

T On what axis shall you mark it?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T On the х axis.

T Correct, on abscissa axis. Where will the number -3 be located on the х axis?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T To the left from О by 3 unit segments.

T Now, what do we have to plot through this point?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T A line, perpendicular to the х axis.

T We can do this using the grid. The line will go vertically.

T Name the coordinate of the point К.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 3

T On what axis will you mark it?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T On the у axis.

T Correct, on the ordinate axis. Where will we find the number 3 on the у axis?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Up from the point О by 3 unit segments.

T What do we have to plot now through this point?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T A line, perpendicular to the у axis.

T This can also be done using the grid. The line will go horizontally.

T Where do we find the point К?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Where these lines intersect, we will find the point К.

T Mark the point Р (5;-2) independently.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T .

T Compare it with the picture on the board. Does everyone has the same picture? Good job!

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Yes.

[Possible problems for strong student s who already do above assignments(a)? If so , which things may be difficult even for strong students to do this assignment ? T: yes: points not obvious , still new material so they could make a mistake such as reverse the number and plot wrong.]

T And now we shall plot on the coordinate plane a point L, whose coordinate x equals 3, and coordinate 1 is one less.

T What coordinate of the point L is unknown?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T The у coordinate.

T What do we know about it?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T The у coordinate is 1 less.

T Yes, the y coordinate is 1 less than the coordinate x, which equals 3.

T Using what operation will we find the coordinate у?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Subtraction

T Let us write this. 3 minus 1equals 2. у=2

T Coordinate y of the point L equals 2.

T What coordinates does the L point have as the result?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T The point L has the coordinates: 3 and 2.

T Write the resulting coordinates.

T Name the coordinate x of this point.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 3

T On what axis shall you mark the number 3?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T On the х axis.

T Where will you mark it?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T To the right of the point О by 3 unit segments.

T What will you do next?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T I will plot a vertical line through this point.

T Correct, this line will be perpendicular to х axis.

T What will you separate off on у axis?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T I will mark number 2 on у axis.

T Where will you mark it?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Up from the point О by 2 unit segments.

T Now what?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T I will plot a line perpendicular to у axis.

T This line will go horizontally along the grid.

T Where will the point L be located?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Where the lines intersect, there the point L will be located.

T Based on the drawing, define and record in the notebook the coordinates of these points.

[Can we just show the algorithm and read together and then ask students to work on the assignment No 7? What is the purpose for students to answer teacher’s questions ? \*\*How can students use an algorithm? T: still do step by step in first lessonVerbalizing and do action could be efficient for students to learn new material .]

T Let us use the algorithm we have in our Math Journal. Try to answer all of the teacher’s questions. This will help you complete the assignment.

T Let us find the coordinates of the point А.

T What shall we start with?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T From the point А, we shall plot a line, perpendicular to the х axis.

T This line will go vertically along the grid.

T Which number on the х axis corresponds to the point of intersection of this line with the х axis?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 2

T What first coordinate will the letter A have?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 2

T We must write it in the round brackets after the name of the point, in the first place. This is the x coordinate.

T We can also say that the abscissa of the point А equals 2.

T Now we shall plot from the point A, a line, perpendicular to the у axis.

T How will this line go in relation to the grid?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Horizontally

T What number on the y axis corresponds to the point of intersection of this line with the у axis?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 4

T This will be the second coordinate of the point А or the coordinate у.

T We can say that the ordinate of the point А equals 4.

T We need to write it in round brackets after the name of the point, on the second place.

T Read the resulting notation.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T The point А with coordinates 2 and 4 (Other possible answers: point А with abscissa 2 and ordinate 4; or, the coordinates of the point A – a pair of numbers 2 and 4).

T Now, let’s find the coordinates of the point В.

T What shall we plot?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T From the point В, we shall plot a line, perpendicular to the х axis.

T Which number did we get on the х axis at the intersection of this line with the х axis?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -4

T What coordinate will you write on the first place?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -4

T Make a notation

T What shall we plot now?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Through the point В, we shall plot a line, perpendicular to the у axis.

T What coordinate do we have to write in the round brackets after the name of the point, on the second place?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 3

T Correct. This number corresponds to the point of intersection of a perpendicular line with the у axis.

T Name the coordinate х of the point В.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -4

T What does the coordinate у of this point equal?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 3

T Alternatively, we can say that the abscissa of the point B is -4, and the ordinate, 3.

T Who would like to find the coordinates of the point С at the board?

T What will you start with?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Through the point С, I will plot a line, perpendicular to the х axis.

T What number did we get on the х axis at the intersection of this line with the х axis?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -2

T What will be the first coordinate of the point С?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -2

T What else will you plot?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Through the point С, a line perpendicular to the у axis.

T What number shall we get on the у axis at the point of intersection of this line with the у axis?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -3

T What is the second coordinate of the point С?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -3

T Read the resulting notation.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Point С with coordinates -2 and -3

T Name the abscissa of the point С. Please answer this question.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -2

T Name the ordinate of the point С. Please answer this question.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -3

T All we have left to do is to find the coordinates of the point D. Please do this independently using the algorithm.

T Let us check the resulting coordinates.

T Are there any other alternatives for coordinates?Good.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T No.

T How did you find the coordinates of the point D?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Through the point D we plot a line, perpendicular to the х axis.

T What number did we get on the х axis at the intersection of this line with the х axis?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 4

T This is the first coordinate of the point D.

T What else did we plot?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T From the point D we plotted a line perpendicular to the у axis.

T What number did we get on the y axis at the intersection of this line with the у axis?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -4

T This is the second coordinate of the point D.

T Read the notation

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T The point D with coordinates 4 and -4.

T Name the abscissa of the point D.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 4

T Name the ordinate of the point D.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -4