071 The coordinate plane

110

Characters:

T $Tutor

S $Strong

W $Weak

T Hello. In this lesson, we’ll learn a lot of new things.

[There were two sets of mental math problems, do you want to show them students all at once or one set after another: any pedagogical reason to do?T: depending situation and media for presentation:]

T But first we’ll do some mental math.

[Which students will be called on to give an answer? Overall for mental math: T: Those weak and average students can manage them, so ask them and strong students can help later situation in case previous student cannot answer right.]

T Let’s do the first problem. What shall we get?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -2

[Are students familiar with math terminologies in following questions such as summands, absolute value etc. T: they should know them at this point. Already practiced a lot.]

T What numbers are we adding?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -6 and 4

T Are these summands with the same sigh or with different signs?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T With different

T Name the number with the greater absolute value.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -6

T In front of the result, we will have the sign of the number with the greater absolute value. So what sign will this expression have?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T The minus sign

T Now we have to subtract the lesser absolute value from the greater one. How shall we calculate this?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T We’ll subtract 4 from 6.

T What shall we get in the result?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -2

T Let’s do the next problem. What did we get?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -8

[This part of scaffolding questions looks similar with the previous one in the sense that adding up different sign numbers, can we shorten some? Or what part of questions are more important, which questions should be asked ? T: details are based on possible mistakes and after one detail explanation we hope students go through similar problem right. So could be one explanation for each methodological type. Ask one of each methodological type.]

T What numbers are we adding?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 4 and -12

T The summands are with the same sign or with different signs?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Two summands with different signs.

T Name the number with the greater absolute value.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -12

T What sign shall we put in front of the result?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T The minus sign

T How did you calculate this?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T From 12 we’ll subtract 4. We’ll get 8.

T What is the result in this problem?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T We’ll get -12

T What numbers are we adding?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -10 and -2

T With the same sign or with different signs?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Two summands with the minus sign.

T How did you calculate this?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T We’ll add 10 and 2, getting 12 and put the minus sign in front, i.e. the answer is -12

T What do we get here?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -4

T What numbers are we adding?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 7 and -11

T The summands are with the same sign or with different signs?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Two summands with different signs.

T Name the number with the greater absolute value.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -11

T What number do we put in front on the result?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T The minus sign

T How shall we calculate next?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T From11 we’ll subtract 7. We’ll get - 4

T What result will we get here?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 3

T What numbers are we adding?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -5 and 8

T The summands – do they have the same sign or different ones?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Different

T Name the number with the greater absolute value.

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 8

T What will be the sign of the result: positive or negative?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Positive

T How did you calculate this?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T We’ll subtract 5 from 8, getting 3

T What shall we get?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -40

T What numbers are we adding?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -30 and -10

T Are the summands with the same sign or different signs?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Same

T What sign shall we put in front of the result?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T The minus sign.

T How did you calculate this?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T We’ll add 30 and 10, getting 40. And the minus. The answer is -40.

T And another group of problems. Multiply.

[Which students will be called on to give answer? T: average or strong students will be better for them, skills are formed by now. Task should be worked with all students:]

T How much did we get?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T - 24

[Is there any reason to ask a strong student about calculations? I think that there would be two types of errors: either sign error or calculus error: are there any other common mistakes?T: Peer students help better: yes there are two types of mistakes]

T we multiplied numbers with the same signs or with different ones?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T With different.

T How did we multiply these two numbers?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T We put the «-» in front and multiplied the absolute values of these numbers i.e. 12 multiplied by 2, getting 24. The answer is -24.

T Correct. What shall we get in the next problem?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 56

T Are the numbers with the same sign or with different ones?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Same.

T I.e. two negative numbers. How to multiply these two numbers?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T First you need to multiply the absolute values of these numbers. I. e. We multiply 7 by 8. We’ll get 56.

T The next problem. What is your answer?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -30

[Similar with comment before: Any reason to ask a strong student about calculations? This calculation is similar with the first one in the sense of multiplication of different sign numbers, so is it possible to ask average students or weak students to try after observing the answers from strong student? T: broke down questions with each step for weak students following better.]

T Are the numbers with the same sign or with different ones?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T With different signs.

T How do we multiply these numbers?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T We put the «-» sign in front of the result and multiply the absolute values of these numbers, i.e. 10 multiplied by 3, we’ll get 30. In the answer we’ll get -30.

T The following are division problems. What shall we get?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -4

T Are the numbers with the same sign or with different ones?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T With different signs.

T How do we divide the numbers with different signs?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Put the «-» sign in front of the result and divide the absolute values of these numbers, i. e. 36 divide by 9, we’ll get 4. The answer is -4

T Correct. What will be the answer in the next one?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T 10

T are the numbers with the same sign or with different ones?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Same

T What are these two numbers: positive or negative?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Two negative numbers

T How to divide two negative numbers?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T We need to divide the absolute value of the dividend by the absolute value of the divisor i.e. 40 divide by 4. We’ll get 10.

T Correct, and when we write the answer, we leave out the plus sign, so the answer is 10.

T And the last problem. What did we get?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T -3

T Are these numbers with the same sign or with different ones?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T With different ones.

T How to divide two numbers with different signs?

[submit clicked, medium]

correct []

[level 1]

incorrect [anything else]

[go to “no response”]

no response

T Put the «-» sign in front of the result and divide the absolute values of these numbers, i.e. 24 divide by 8, getting 3. We shall get -3 in the answer.

T Good job, guys.