

Jan 7th 12:57:22 am

Welcome back 😊 Kara.

Jan 7th 12:57:24 am

I'm finding you a tutor ASAP.

Jan 7th 12:57:26 am

BTW, the tutor will spend a minute reviewing your problem so when the session begins, you can quickly jump into it! Remember the tutor might still have questions about where and why you are stuck.

Jan 7th 12:57:28 am

Sounds like a plan

Jan 7th 12:57:31 am

Did you start on the problem, even just a little?

Jan 7th 12:57:34 am

If so, take a 📷 of your work so I can send it to the tutor. There's no such thing as sending too little work 😊

Jan 7th 12:57:36 am

Not now

Jan 7th 12:57:39 am

No worries 😊 your tutor can help you from the beginning!

Jan 7th 12:57:42 am

Sounds good 🙌

Jan 7th 12:57:44 am

TUTOR FOUND, NOW REVIEWING PROBLEM AT NO CHARGE

Jan 7th 12:57:46 am

Want to hear a Pro Yup Tip?...Yes? 🧐:

Jan 7th 12:57:47 am

All Yup tutors are real people, so please treat them with respect. ❤️

Jan 7th 12:57:50 am

Cool, how about another?

Jan 7th 12:57:53 am

Sure!

Jan 7th 12:57:55 am

Remember that you cannot learn without making mistakes. Do not let failure discourage you from reaching your potential!

Jan 7th 12:57:59 am

Okay looks like you're ready to go 😊

Jan 7th 12:58:06 am

SESSION STARTED AT 8:58 PM

Jan 7th 12:58:07 am

Hello!

Jan 7th 12:58:16 am

Hello Kara, I am Usha your math tutor for the session!

Jan 7th 12:58:28 am ✓ *Introduction: Tutor greets student by name and introduces herself*

Great!

Jan 7th 12:58:53 am

I got your question on increasing and decreasing intervals and am pleased to help you with the same :)

Jan 7th 12:58:56 am ✓ *Introduction: Builds rapport with reassuring language*

How far have you gotten in solving the problem?

Jan 7th 12:59:11 am ✓ *A1: Determine progress*

Thank you I just got confused because when I graph this how the problem is I can't seem to find the answer so I was thinking maybe you

Jan 7th 12:59:49 am

Find the x coordinates but I'm really not sure where to start

Jan 7th 1:00:06 am

No worries! I can guide you on solving the problem using the derivative function given!

Jan 7th 1:00:29 am ✓ *C2: Reassure the student*

Thanks!

Jan 7th 1:00:40 am

What is given is the derivative function $f'(x)$!

Jan 7th 1:00:57 am

Had the function $f(x)$ is directly given, you can use the graph to solve the problem!

Jan 7th 1:01:23 am

✓ *B1/C1: Redirect student error*
Note: this should be "Had the function $f(x)$ been directly given, you could use the graph to solve..."

The $(1-x)(4-x)$ should I solve this

Jan 7th 1:01:50 am

And oh that makes sense

Jan 7th 1:01:57 am

Any idea on how to use the derivative to determine the increasing and decreasing functions?

Jan 7th 1:02:07 am ✓ *A1: Probe the student's understanding of concepts*

What happens to the derivative when the function is increasing?

Jan 7th 1:02:27 am ✓ *A1: Probe the student's understanding of concepts*

It increases?

Jan 7th 1:02:45 am

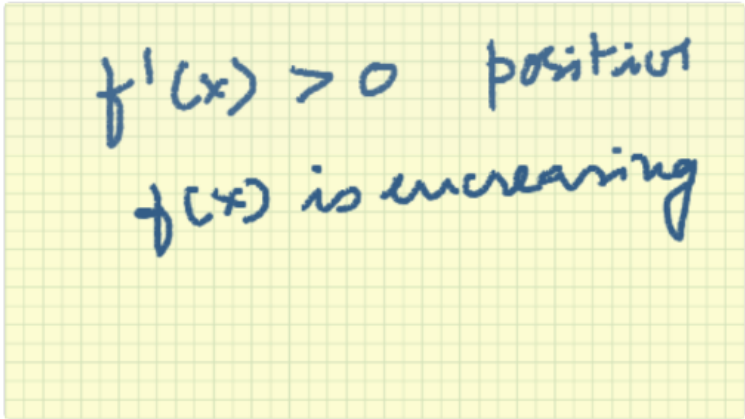
Not Quite! We check the signs of the derivative to determine this!

Jan 7th 1:03:03 am ✓ *B1/C1: Redirect student error*

Let me send in the simple rule we use!

Jan 7th 1:03:11 am ✓ *C1: Adapt instruction to student gap*

Jan 7th 1:03:21 am



Jan 7th 1:03:40 am ✓ **B2: Uploads relevant supporting information to supplement explanation**

When the derivative $f'(x)$ is positive $f(x)$ is increasing!

Jan 7th 1:03:54 am ✓ **C1: Adapt instruction to student gap**

Same way, can you now guess when it is decreasing?

Jan 7th 1:04:10 am ✓ **C3: Invite student input**

And negative decreasing

Jan 7th 1:04:16 am

Fantastic!

Jan 7th 1:04:21 am ✓ **C2: Encouraging language**

So, to determine the intervals we first find the critical numbers!

Jan 7th 1:04:41 am ✓ **B2: Explain approach upfront**

Oh ok

Jan 7th 1:04:53 am

That is we first find x , when $f'(x) = 0$!

Jan 7th 1:05:05 am ✓ **B2: Clarifies step further**

Can you try finding the critical values?

Jan 7th 1:05:17 am ✓ **C3: Encourage student to take the next step**

Yes I'll try now

Jan 7th 1:05:52 am

That is cool :)

Jan 7th 1:06:02 am

Wouldn't $x = -1$ and -4

Jan 7th 1:06:27 am

Oops! You made one slight mistake. Can you try again?

Jan 7th 1:06:49 am ✓ **C2: Acknowledge student's mistake without causing stress**

How did you get these numbers?

Jan 7th 1:07:01 am ✓ **C2: Asks student to justify their thought process**

Setting each of the parentheses to 0

Jan 7th 1:07:26 am

Yes! That was indeed done correct!

Jan 7th 1:07:44 am ✓ **C2: Reassuring language**
Note: should be "...done correctly"

1 - $x = 0$. Then $x = ?$

Jan 7th 1:07:50 am ✓ **C3: Guiding question**

Jan 7th 1:08:09 am

Yes indeed :) It just went off with the sign!

Jan 7th 1:08:22 am ✓ **C3: Invite student input**

So, what are the critical numbers?

Jan 7th 1:08:32 am ✓ **C3: Invite student input**

Oh so 4 and 1

Jan 7th 1:08:36 am

Awesome :) You fixed it quick!

Jan 7th 1:08:50 am ✓ **C2: Reassuring language**

We now need to analyze the intervals formed by these two numbers on number line!

Jan 7th 1:09:31 am ✓ **B2: Guide student towards next step**

What are the intervals formed?

Jan 7th 1:09:39 am ✓ **C3: Invite student input**

Increasing?

Jan 7th 1:10:04 am

Because there positive

Jan 7th 1:10:09 am

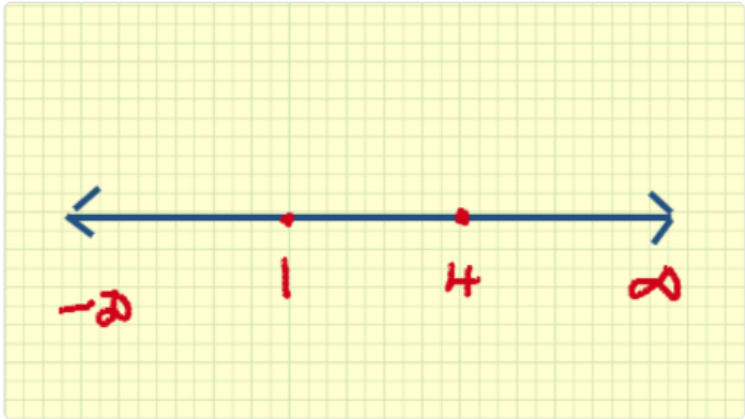
✓ **C1: Adapts explanation to student's confusion**

Not yet to that! Let me show the intervals formed on the number line! Just one moment!

Jan 7th 1:10:33 am

Ok

Jan 7th 1:10:42 am



Jan 7th 1:11:05 am ✓ **B2: Supplements explanation with visual aid**

We have three intervals formed!

Jan 7th 1:11:21 am

Values less than 1 or $(-\infty, 1)$

Jan 7th 1:11:33 am

Values between 1 and 4 or $(1, 4)$

Jan 7th 1:11:45 am

And finally values greater than 4 $(4, \infty)$

Jan 7th 1:11:58 am

Ok I see!

Jan 7th 1:12:00 am

Cool :) We now need to check the sign of $f'(x)$ in these intervals!

Jan 7th 1:12:17 am ✓ **B2: Guide student towards next step**

We can use test values to do that!

Jan 7th 1:12:27 am

Let us take the first interval $(-\infty, 1)$

Jan 7th 1:12:44 am

We need to choose a x value less than 1 and plug it in $f'(x)$ and check the sign!

Fantastic! You chose the right and easiest one!

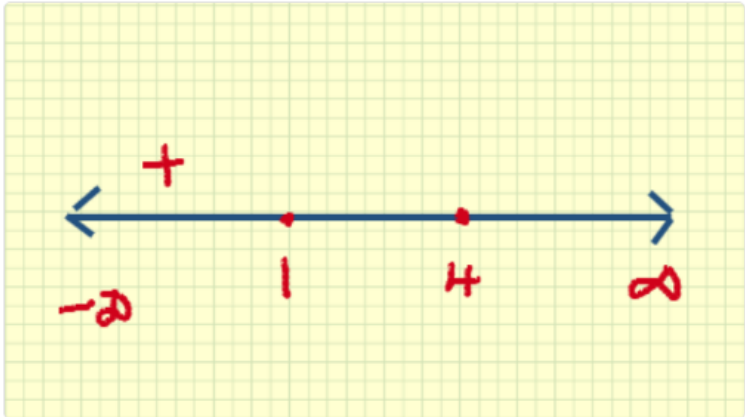
Jan 7th 1:13:33 am ✓ C2: Encouraging language

What do we get for $f(0)$?

Jan 7th 1:13:45 am ✓ C3: Guiding question

Correct! That means $f(x)$ is positive in $(-\infty, 1)$. Right?

Jan 7th 1:14:39 am ✓ B2: Breaks down concept further



Jan 7th 1:14:46 am ✓ B2: Supplements steps with visual aid to allow student to follow their progress

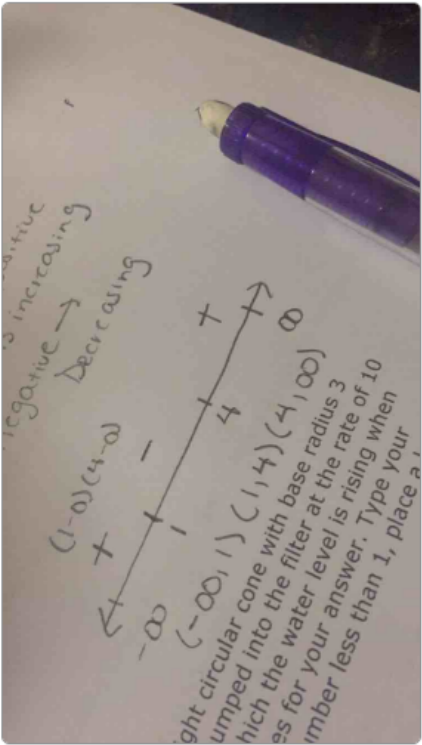
Cool :) Same way could you find the signs in the other two intervals?

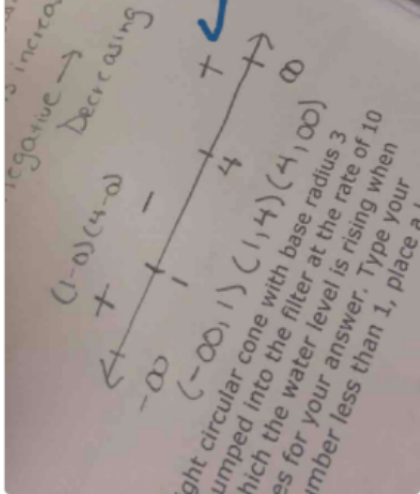
Jan 7th 1:15:08 am ✓ C3: Invite student to proceed independently

So we choose a number between 1 and 4?

Yes! Go ahead :)

Jan 7th 1:15:38 am ✓ C3: Invite student to proceed independently





Jan 7th 1:16:48 am

Awesome :) You got the signs correct!

Jan 7th 1:16:57 am ✓ C2: Positive language

Great!

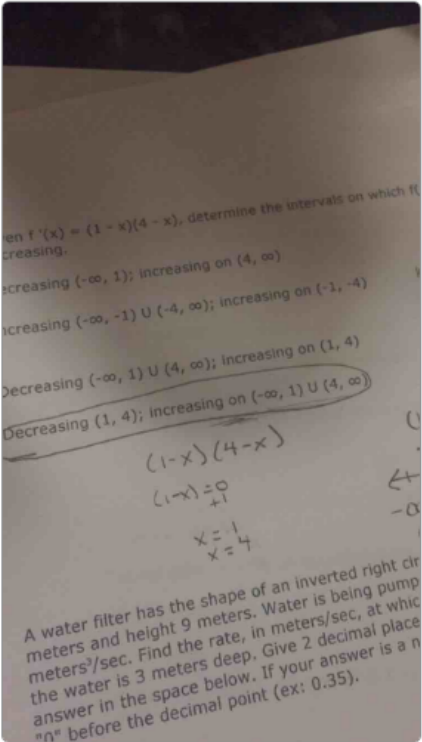
Jan 7th 1:17:09 am

I guess you can now find the increasing and decreasing intervals!

Jan 7th 1:17:19 am ✓ C3: Invite student to proceed independently

Yes so the last one

Jan 7th 1:17:55 am



Jan 7th 1:18:07 am

Woohoo! You are right :)

Jan 7th 1:18:27 am ✓ C2: Positive language

Thanks this makes a lot more sense

Jan 7th 1:18:42 am

Can you now summarize what we do to find the decreasing and increasing intervals!

Jan 7th 1:18:54 am ✓ B2/C1: Tutor invites student to summarize key ideas to cement learning, check for understanding

It is just to check you got the concept correct :)

Jan 7th 1:19:06 am

Yes first we find the critical points then plot them on the graph and then test whether there negative or positive to see if there increasing or decreasing

Jan 7th 1:19:47 am

Yes correct!

Jan 7th 1:20:08 am ✓ C2: Positive language

Increasing if it is positive and decreasing if negative!

Jan 7th 1:20:20 am ✓ B2: Recap to ensure understanding

Yes

Jan 7th 1:20:34 am

I appreciate your patience and sincerity in learning things correct!

Jan 7th 1:20:40 am ✓ *Praises student for their efforts and participation*
(Note: This should be phrased "...learning things correctly")

Is there anything else I can guide you on?

Jan 7th 1:20:49 am ✓ *Tutor checks to see if the student needs further help*

Thank you for the help I think I'm good for now!

Jan 7th 1:21:05 am

You are welcome!

Jan 7th 1:21:13 am

Thank you for being with us at Yup!

Jan 7th 1:21:21 am ✓ *Conclusion: Tutor thanks student for using Yup*

Bye for now and take care!

Jan 7th 1:21:26 am ✓ *Conclusion: Warm send off*