Hi Rolando! My name is Mr. Shinde and I will be your tutor for this session. How are you?

Apr 19th 3:11:42 pm ✓ *Introduction: Builds rapport with warm greeting*

Just to make sure: The numerator is 3x^2, right?

Apr 19th 3:12:06 pm ✓ *A1: Confirm understanding of the student's problem*

yes

Apr 19th 3:12:25 pm

Thanks for clarifying it. :)

Apr 19th 3:12:39 pm

I have reviewed your problem. We will find the answer together in no time! Are you ready to begin now?

Apr 19th 3:12:42 pm

ready

Apr 19th 3:12:54 pm

Great! How far have you gotten on the problem? Or should we start from the beginning?

Apr 19th 3:13:14 pm ✓ *A1: Determine the student's progress / starting point*

from the beginning

Apr 19th 3:13:26 pm

Alright! Here we have a function f(x)=3x^2/(x-7).

Apr 19th 3:14:12 pm

We want to find the derivative of it. Do you have any ideas or guesses as to how we should begin this problem?

Apr 19th 3:14:24 pm ✓ *A1: Gauge student's existing knowledge*

use the quotient rule?

Apr 19th 3:15:10 pm

WOW! That is the exactly the main idea we have to use here. :)

Apr 19th 3:15:42 pm ✓ *C2: Motivates student with encouraging language*

Would you mind trying to apply the quotient rule of derivative for the given function?

Apr 19th 3:16:14 pm ✓ *C3: Encourage student to take the first step*

How is it going?

Apr 19th 3:17:14 pm ✓ *C1: Checks in with the student to see if they need help*

> working on it
>
> Apr 19th 3:17:32 pm

Cool! Let me know the answer as soon as you complete working on it.

Apr 19th 3:17:43 pm

Please let me know if you get stuck, I'm here to help!

Apr 19th 3:18:02 pm ✓ *C2: Reassure the student*

> I have an idea but not sure if I'm right
>
> Apr 19th 3:18:06 pm

That's alright! Would mind sharing your idea here?

Apr 19th 3:18:36 pm ✓ *C3: Encourages student to share their work*

Please share an image of what you did for me just to make sure that we are on the right track.

Apr 19th 3:20:06 pm

That way we can figure out where exactly you got stuck. :)

Apr 19th 3:20:30 pm

> is the quotient rule the derivative of the top times the bottom minus the top times the derivative of the bottom all over bottom squared?
>
> Apr 19th 3:20:40 pm

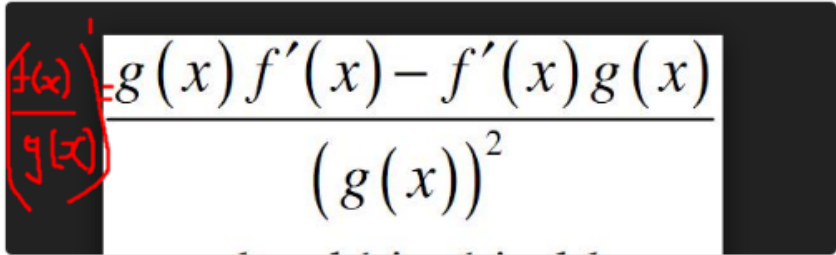That's exactly the quotient rule. :)

Apr 19th 3:21:08 pm

Good job on getting the correct rule there. :)
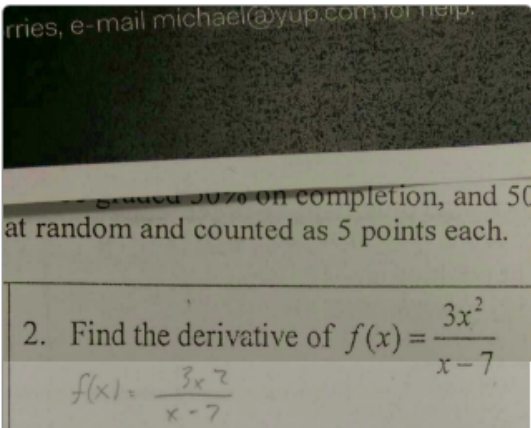
Apr 19th 3:21:26 pm ✓ *C2: Encouraging words*

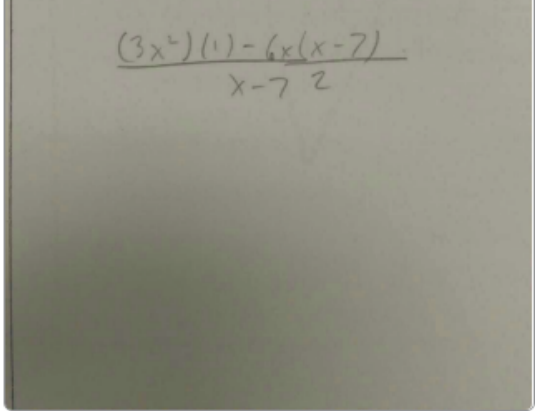Let me upload an image of quotient rule for your reference.

Apr 19th 3:21:59 pm ✓ *B2: Uploads relevant supplementary materials*

$$\frac{f(x)}{g(x)} = \frac{g(x)f'(x) - f'(x)g(x)}{(g(x))^2}$$

Apr 19th 3:22:14 pm

rries, e-mail michael@yup.com for help.

...graded 50% on completion, and 50 at random and counted as 5 points each.

2. Find the derivative of $f(x) = \dfrac{3x^2}{x-7}$

$f(x) = \dfrac{3x^2}{x-7}$

$$\frac{(3x^2)(1) - 6x(x-7)}{x-7\ ^2}$$

Apr 19th 3:22:31 pm

Suppose our function has the form f(x)/g(x) then derivative of this function is given by above formula.

Apr 19th 3:22:44 pm

Just a moment!

Apr 19th 3:22:51 pm

Almost there! There is very small error which we need to fix.

Apr 19th 3:23:42 pm ✓ **B1/C1: Acknowledge student's mistake without causing stress**

ok what is the error

Apr 19th 3:24:04 pm

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

Note that in quotient rule we first take the derivative of top term times the bottom term.

Apr 19th 3:24:24 pm

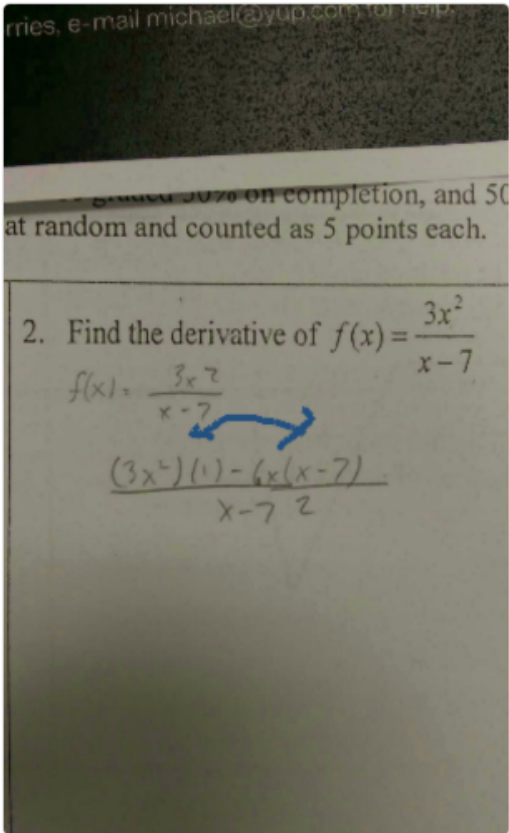Here you have taken the derivative of bottom term first.

Apr 19th 3:24:53 pm

Can you spot that error?

Apr 19th 3:25:02 pm

Position of those two terms must be interchanged. :)

Apr 19th 3:25:38 pm

Apr 19th 3:25:41 pm ✓ **C1/B2: Whiteboard image to supplement explanation**

Are we clear on this? There is no big issue, just a matter of negative sign. :)

Apr 19th 3:26:14 pm ✓ **C1: Check with the student to ensure understanding**

ok

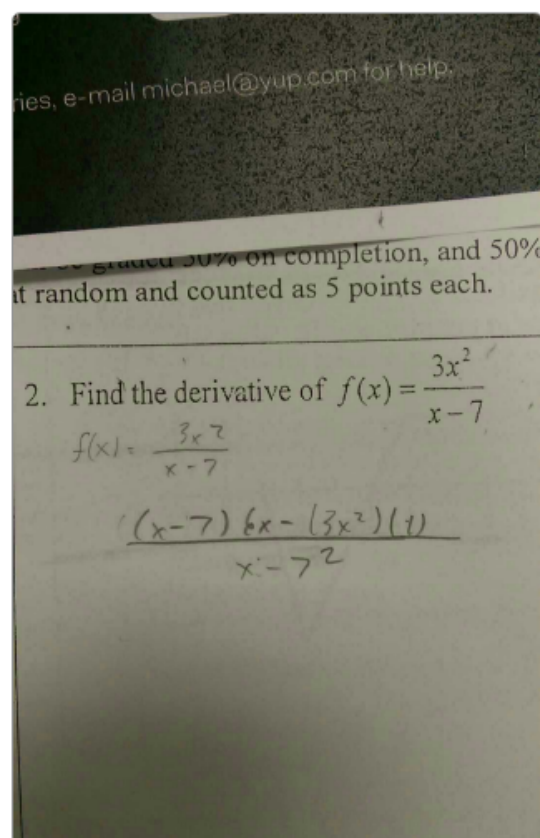Apr 19th 3:26:27 pm

ok thank you

Apr 19th 3:26:31 pm

So what do we get if we fix that error?

Apr 19th 3:26:47 pm ✓ *C3: Guides student towards correcting their own mistake*

You are welcome. :)

Apr 19th 3:26:56 pm

Quotient rule: The derivative of the top times the bottom minus the top times the derivative of the bottom all over bottom squared?
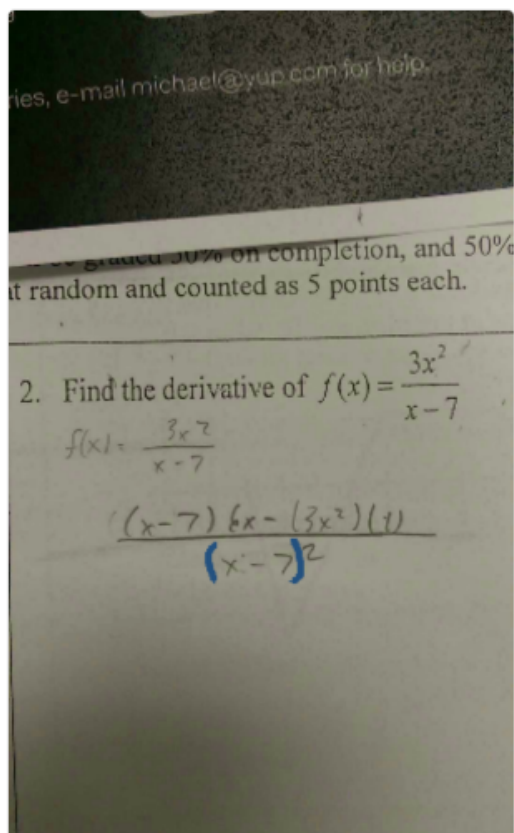
Apr 19th 3:27:55 pm ✓ *B2: Restates formula to ensure they are on the same page*
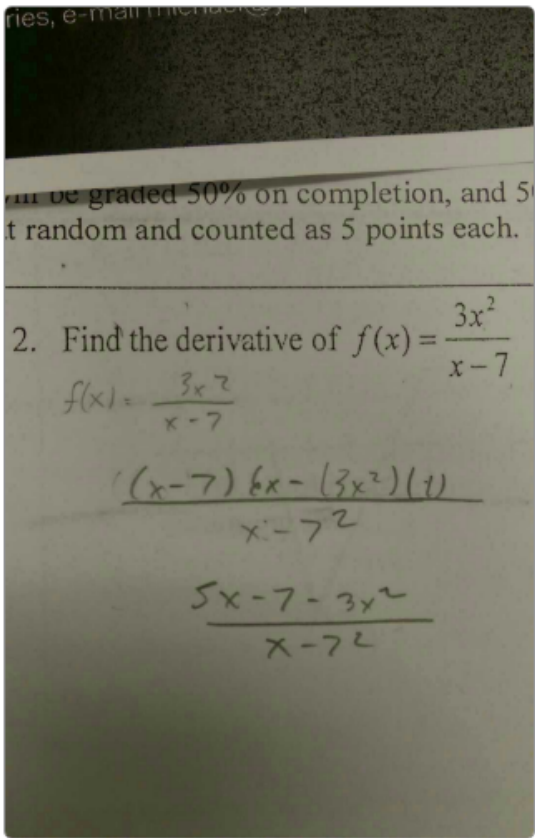

Apr 19th 3:28:11 pm

Awesome!

Apr 19th 3:28:35 pm

Can we simplify it further?

Apr 19th 3:28:48 pm ✓ *C3: Open guiding question*

Apr 19th 3:29:20 pm

ries, e-mail michael@y...

...be graded 50% on completion, and 5...
t random and counted as 5 points each.

2. Find the derivative of $f(x) = \dfrac{3x^2}{x-7}$

$f(x) = \dfrac{3x^2}{x-7}$

$\dfrac{(x-7)6x - (3x^2)(1)}{x-7^2}$

$\dfrac{5x-7-3x^2}{x-7^2}$

Apr 19th 3:29:27 pm

✓ **C1: Tutor redirects student's mistake without causing stress**

Hmm, not quite! Good try though. Let's do it step by step.

Apr 19th 3:30:16 pm

Notice that here we want do the multiplication (x-7)6x.

Apr 19th 3:30:47 pm
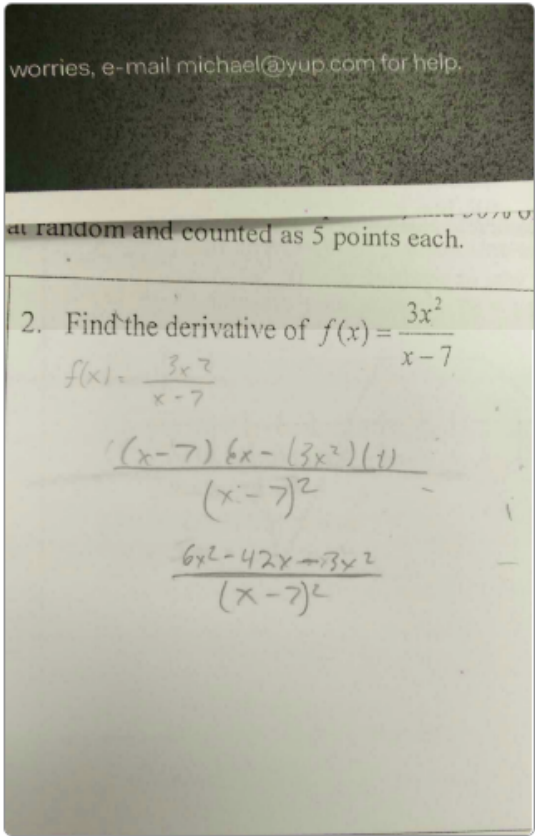
How did you get that 5x-7 term there?

Apr 19th 3:31:34 pm ✓ **C3: Ask student to justify their thought process**

6x-x

Apr 19th 3:32:05 pm

Very close but not exactly! We need to use something called "distribution," which means multiplying every term inside the parentheses by what's on the outside.

Apr 19th 3:32:25 pm ✓ **C1: Adapts explanation to student's confusion**

worries, e-mail michael@yup.com for help.

...random and counted as 5 points each.

2. Find the derivative of $f(x) = \dfrac{3x^2}{x-7}$

$f(x) = \dfrac{3x^2}{x-7}$

$\dfrac{(x-7)6x - (3x^2)(1)}{(x-7)^2}$

$\dfrac{6x^2 - 42x - 3x^2}{(x-7)^2}$

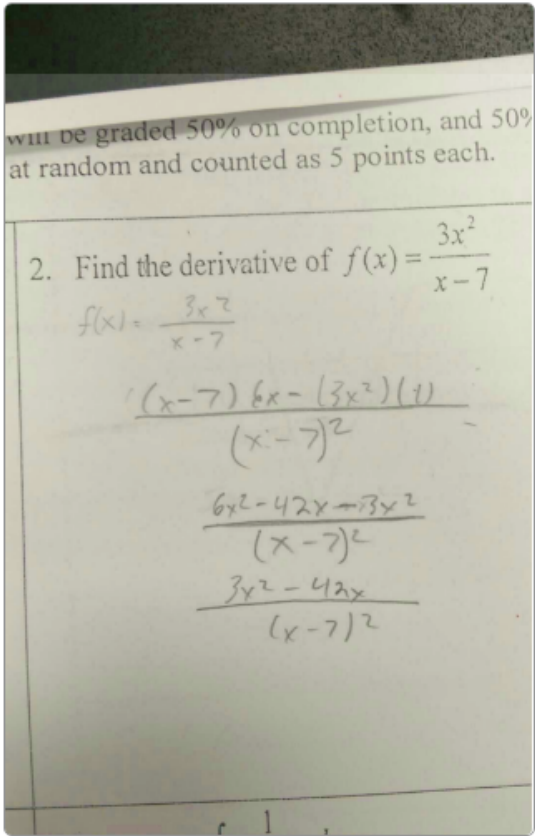Apr 19th 3:32:28 pm

There you go!

Apr 19th 3:32:47 pm

You have figured out the error on your own. Good job again. :)

Apr 19th 3:33:16 pm ✓ *C2: Positive language*

Can we simplify it further?

Apr 19th 3:33:29 pm ✓ *C3: Invite student input*

Apr 19th 3:33:54 pm

✓ *C2: Encouraging words / punctuation*

Awesome! Thus, we have figured out the derivative of given function. :)

Apr 19th 3:34:39 pm

Heads up! You have solved the problem with very little help! Keep up the good work!

Apr 19th 3:34:55 pm

thank you

Apr 19th 3:35:10 pm

Welcome! That does it for this problem! Is there anything else I can help you with?

Apr 19th 3:35:27 pm ✓ *Tutor checks to see if student needs more help*

no that will be all

Apr 19th 3:35:40 pm

Okay! It was my pleasure helping you out today. Have a good day!

Apr 19th 3:36:00 pm ✓ *Conclusion: Warm send off*

you too

Apr 19th 3:36:09 pm

Thanks for choosing Yup. :)

Apr 19th 3:36:13 pm ✓ *Conclusion: Tutor thanks student for choosing Yup*

Bye. :)

Apr 19th 3:36:16 pm

Student ended session

Apr 19th 3:36:21 pm