



Oct 31st 11:15:36 pm

Hi 1241. I am Mr Leslie. I will be your tutor for this session.

Oct 31st 11:16:29 pm ✓ **Introduction: Tutor greets student by name and introduces himself by last name**

Can you show me what you have tried with this problem so far?

Oct 31st 11:16:45 pm ✓ **A1: Determine progress**

hello Mr Leslie

Oct 31st 11:16:58 pm

:)

Oct 31st 11:17:02 pm

yes

Oct 31st 11:17:09 pm

Ok. Go right ahead and send it.

Oct 31st 11:17:24 pm

i have try to multiply 4.9 and 3.44

Oct 31st 11:17:38 pm

and then I did the exponents

Oct 31st 11:17:47 pm

That's a very good start. What did you get when you multiplied 4.9 and 3.44?

Oct 31st 11:18:03 pm ✓ **A1: Determine starting point / probe student's level of understanding**

i got

Oct 31st 11:18:19 pm

wait give me a sec

Oct 31st 11:18:34 pm

No problem.

Oct 31st 11:18:40 pm

i got 168,560

Oct 31st 11:19:56 pm

That was pretty close. But you forgot the decimal places.

Oct 31st 11:20:18 pm ✓ **C2: Acknowledge student's mistake without causing stress**

oh ya

Oct 31st 11:20:28 pm

so it would be 16.8560

Oct 31st 11:20:59 pm

Excellent work!! I like that!

Oct 31st 11:21:10 pm ✓ **C2: Positive language**

Now, let's try the powers of 10.

Oct 31st 11:21:23 pm

What do we get when we multiply these:

Oct 31st 11:21:38 pm ✓ **C3: Guiding question**

$$10^{-12} \times 10^5$$

Oct 31st 11:21:51 pm

ok well i added 9 and -11

Oct 31st 11:22:09 pm

Oops. Be careful.

Oct 31st 11:22:26 pm

Remember we are doing number 12.

Oct 31st 11:22:31 pm

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

sorry I was looking at the wrong

Oct 31st 11:22:44 pm

It's ok.

Oct 31st 11:22:51 pm

:)

Oct 31st 11:22:54 pm

✓ **C2: Reassuring language**

problem

Oct 31st 11:22:55 pm

i got 10 to the -7

Oct 31st 11:23:21 pm

Correct!!

Oct 31st 11:23:32 pm

✓ **C2: Positive language**

So, this is what we have so far:  $16.856 \times 10^{-7}$ .

Oct 31st 11:23:51 pm

✓ **B2: Quick recap of completed step to ensure student is following along**

Now, do you remember the next step?

Oct 31st 11:24:01 pm

✓ **C3: Encourages student to share existing knowledge**

no i thought that was my answer

Oct 31st 11:24:32 pm

Not quite. For scientific notation we can only have one non-zero number before the decimal point.

Oct 31st 11:24:58 pm

✓ **C1: Adapt instruction to student gap**

do you have to multiply 10/7 times

Oct 31st 11:25:05 pm

No, no. All we need to do is move the decimal point between the 1 and the 6 and adjust the exponent of 10.

Oct 31st 11:25:30 pm

✓ **B2: Guide student towards next step**

Do you know how to do that?

Oct 31st 11:25:38 pm

✓ **C1: Tutor investigates the student's understanding**

i think so

Oct 31st 11:25:47 pm

Ok, go ahead and try it.

Oct 31st 11:25:53 pm

✓ **C3: Invite student to proceed independently**

so you would get 1.68560

Oct 31st 11:26:20 pm

Looking good so far!

Oct 31st 11:26:32 pm

✓ **C2: Positive language**

okay then do you combine exponents because they have the same base

Oct 31st 11:27:21 pm

Not quite. Remember we already had  $10^{-7}$ .

Oct 31st 11:27:40 pm ✓ **B1/C1: Redirect student error**

oh ya i remember  
Oct 31st 11:28:01 pm

Now, because we moved the decimal point one place to the right we will make a change to the -7.

Oct 31st 11:28:03 pm ✓ **B2: Break down underlying concept/C1: Adapt to student's knowledge gap**

Ok.

Oct 31st 11:28:04 pm

Do you know what that change should be?

Oct 31st 11:28:16 pm ✓ **C3: Invite student input**

would you add -1 to the -7  
Oct 31st 11:28:50 pm

That was very close!!

Oct 31st 11:29:00 pm ✓ **C2: Acknowledge student's mistake without causing stress**

You would add -1 if you moved the decimal to the right.

Oct 31st 11:29:14 pm ✓ **B2: Breaks down concept further / C1: Adapts to student's knowledge gap**

When we move one place to the left we add positive one.

Oct 31st 11:29:30 pm

*(Note: Ideally the tutor would have explained this step further to ensure the student fully understands how moving the decimal affects the exponent.)*

oh you add positive 1  
Oct 31st 11:29:43 pm

There you go!

Oct 31st 11:29:48 pm

so you would get  
Oct 31st 11:29:57 pm

10 to the -6 power  
Oct 31st 11:30:15 pm

Woohoo! You are right :)

Oct 31st 11:30:20 pm ✓ **C2: Encouraging words**

oh ok  
Oct 31st 11:30:27 pm

So, what is our overall result?

Oct 31st 11:30:27 pm ✓ **C3: Invites student's final answer**

the overall result is 1.68 560 x 10 to the -6 power  
Oct 31st 11:31:10 pm

Excellent work!!

Oct 31st 11:31:19 pm ✓ **C2: Encouraging words**

Can you try one for me?

Oct 31st 11:31:32 pm

yes  
Oct 31st 11:31:43 pm

Ok, what should our value for the exponent be here:

Oct 31st 11:31:58 pm

$$123 \times 10^2$$
$$= 1.23 \times 10^x$$

✓ **C1: CFU to confirm student understanding**

Oct 31st 11:32:02 pm

would it be 10 to the 4 power

Oct 31st 11:32:44 pm

Correct!!

Oct 31st 11:32:55 pm

✓ **C2: Encouraging language**

You have done quite well.

Oct 31st 11:33:02 pm

yeah

Oct 31st 11:33:05 pm

Do you understand it fully now?

Oct 31st 11:33:15 pm

✓ **C1: Check with the student to ensure understanding**

yes Mr Leslie

Oct 31st 11:33:31 pm

Great.

Oct 31st 11:33:40 pm

thank you for your time

Oct 31st 11:33:50 pm

Do you need help with anything else?

Oct 31st 11:33:51 pm

✓ **Tutor checks to see if the student needs further help**

Ok.

Oct 31st 11:33:53 pm

You are welcome.

Oct 31st 11:33:56 pm

do i just click the X on the top right

Oct 31st 11:34:23 pm

That's correct.

Oct 31st 11:34:31 pm

ok thank you

Oct 31st 11:34:37 pm

:)

Oct 31st 11:34:40 pm

Student ended session

Oct 31st 11:34:43 pm