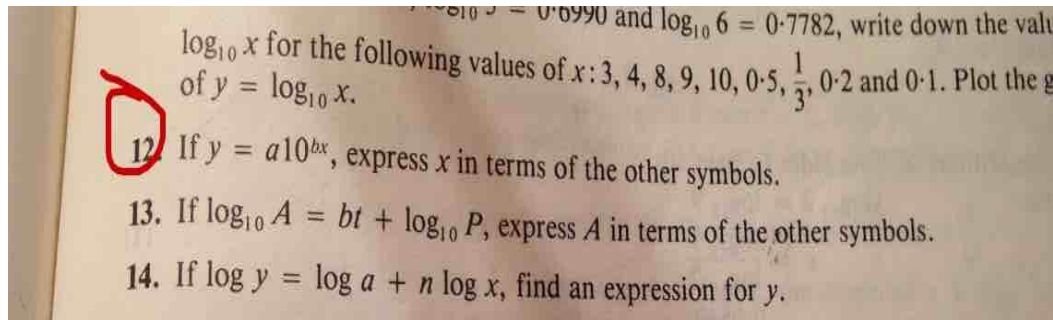




Student: Jennifer

Date: July 11th, 2017



Jul 11th 5:51:31 am

Hello Jennifer!

✓ **Introduction: Greets student by name**

Jul 11th 5:52:06 am

Welcome to Yup! I'm Mr. Kamireddy and I'll be your tutor for this session. How are you today?

✓ **Introduction: Builds rapport with warm greeting**

Jul 11th 5:52:09 am

Hello good thanks

Jul 11th 5:52:15 am

Can you tell me how far you have gotten on this problem?

✓ **A1: Determine starting point**

Jul 11th 5:52:26 am

I haven't done anything

Jul 11th 5:52:49 am

No worries, we'll tackle it together.

✓ **C2: Reassuring "we" language**

Jul 11th 5:53:06 am

Have you done similar problems earlier?

✓ **A1: Determine student's level of understanding**

Jul 11th 5:53:20 am

No

Jul 11th 5:53:39 am

Let's work on this together.

✓ **C2: Use of "we" language**

Jul 11th 5:53:49 am

We're asked to solve for x from the given equation.

Jul 11th 5:54:16 am

So what would be the first step to isolate x?

✓ **C3: Invite student input**

Jul 11th 5:55:05 am

$bx \log 10$?

Jul 11th 5:55:31 am

May I know how you got $bx \log 10$?

✓ **C3: Ask student to justify their thought process**

Jul 11th 5:56:01 am

Wait I mean bx a 10

Jul 11th 5:56:12 am

You're very close!

✓ **C2: Acknowledge student's mistake without causing stress**

Jul 11th 5:56:48 am

Your idea of applying log is correct.

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

Jul 11th 5:57:02 am

But before that we have to isolate the exponent term $10^{(bx)}$

Jul 11th 5:57:21 am

So any idea on how to isolate $10^{(bx)}$ on the right side?

✓ **C3: Invite student input**

Jul 11th 5:58:20 am

Do y/a on the left

Jul 11th 5:59:08 am

Awesome!

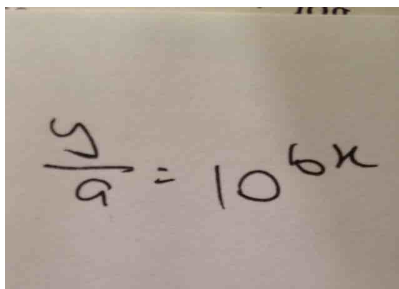
✓ **C2: Positive language**

Jul 11th 5:59:13 am

So the equation would be?

✓ **C3: Encourage student to take the next step**

Jul 11th 5:59:26 am



A photograph of a piece of paper with the handwritten equation $\frac{5}{a} = 10^{bx}$ written in black ink.

Jul 11th 6:00:09 am

Perfectly done!

✓ **C2: Positive language**

Jul 11th 6:00:19 am

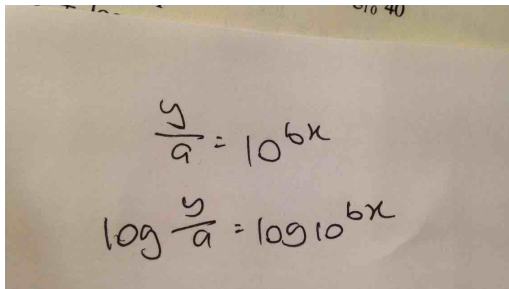
What would be the next step?

✓ **C3: Invite student input**

Jul 11th 6:00:28 am

Log both sides?

Jul 11th 6:00:54 am


$$\frac{y}{a} = 10^{bx}$$
$$\log \frac{y}{a} = \log 10^{bx}$$

Jul 11th 6:02:27 am

You're on the right track!

Jul 11th 6:01:04 am

Go ahead.

✓ **C3: Encourage student to take step independently**

Jul 11th 6:01:06 am

Let me go through your work.

Jul 11th 6:02:39 am

That's correct! Nice work :)

✓ **C2: Positive language**

Jul 11th 6:02:51 am

What would be the next step?

✓ **C3: Invite student input**

Jul 11th 6:02:59 am

I don't know

Jul 11th 6:03:11 am

Not a problem. Let's work on this step together.

✓ **C2: Reassuring language**

Jul 11th 6:03:34 am

Are you familiar with the properties of log?

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

Jul 11th 6:03:46 am

Yes

Jul 11th 6:03:52 am

Note: Ideally the tutor would have probed about log properties at the beginning of the session during the gap clarification phase

Great!

Jul 11th 6:04:08 am

So which property we apply on the right side?

✓ **C3: Invite student input**
Jul 11th 6:04:20 am

The one where the bx goes in front of 10?

Jul 11th 6:04:50 am

You mean in front of log10?

✓ **C1: Redirects error**
Jul 11th 6:05:09 am

Yes

Jul 11th 6:05:16 am

Exactly!

Jul 11th 6:05:22 am

Go ahead and share your work.

✓ **C3: Invite student to proceed independently**
Jul 11th 6:05:28 am

The image shows a student's handwritten work on a piece of paper. The work is as follows:
1. $\frac{y}{a} = 10^{bx}$
2. $\log \frac{y}{a} = \log 10^{bx}$
3. ~~$\log \frac{y}{a} = bx \log 10$~~
4. ~~$\log (y/a) = \log$~~
5. $\log \frac{y}{a} = bx \log 10$

Jul 11th 6:05:59 am

Good job!

Jul 11th 6:06:12 am

Any idea on the next step?

✓ **C3: Invite student input**
Jul 11th 6:06:18 am

$$\begin{aligned}
 a &= 10^{bx} \\
 \log \frac{y}{a} &= \log 10^{bx} \\
 \log \frac{y}{a} &= bx \log 10 \\
 \log(y-a) &= \log 10^{bx} \\
 \log \frac{y}{a} &= bx \log 10 \\
 \log(y-a) &= bx \log 10
 \end{aligned}$$

Jul 11th 6:06:55 am

log(y/a) is log(y-a)?

✓ C2: Acknowledge student's mistake without causing stress

Jul 11th 6:07:18 am

Oh no

Jul 11th 6:07:30 am

$$\begin{aligned}
 \log \frac{y}{a} &= bx \log 10 \\
 \log(y-a) &= \log 10^{bx} \\
 \log \frac{y}{a} &= bx \log 10 \\
 \log(y-a) &= bx \log 10 \\
 \log y - \log a &= bx \log 10
 \end{aligned}$$

Jul 11th 6:07:50 am

This is perfect!

✓ C2: Motivates student with encouraging language

Jul 11th 6:08:04 am

Next step would be?

Jul 11th 6:08:21 am

Put bx on one side and the rest on the other?

Jul 11th 6:09:05 am

What is the value of $\log 10$?

✓ *B2: Guide student towards next step*

Jul 11th 6:09:22 am

I don't know

Jul 11th 6:09:36 am

Okay. What is the base of \log ?

✓ *C3: Guiding question*

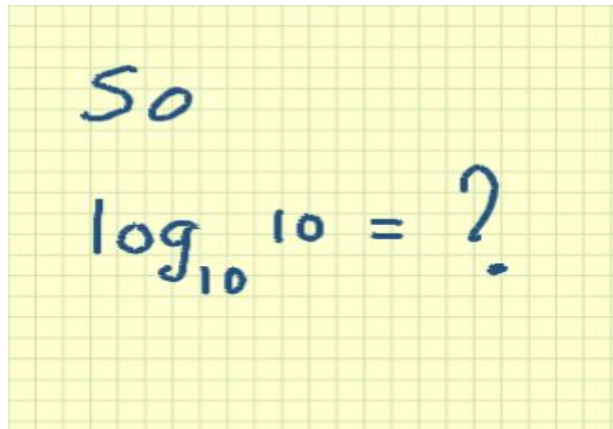
Jul 11th 6:09:53 am

10?

Jul 11th 6:10:33 am

Perfect!

Jul 11th 6:10:37 am



✓ *C1/B2: Whiteboard image to supplement explanation*

Jul 11th 6:10:52 am

So $\log 10 = 10$?

Jul 11th 6:10:54 am

Not quite, good try though!

✓ *C2: Acknowledge student's mistake without causing stress*

Jul 11th 6:11:04 am

Oh wait 1

Jul 11th 6:11:08 am

There you go!

Jul 11th 6:11:14 am

$$\begin{aligned}
 y &= a 10^{bx} \\
 \frac{y}{a} &= \frac{a 10^{bx}}{a} \\
 \frac{y}{a} &= 10^{bx} \\
 \log \frac{y}{a} &= \log 10^{bx} \\
 \log y - \log a &= bx
 \end{aligned}$$

✓ C1/B2: Whiteboard image to supplement explanation

Jul 11th 6:11:46 am

So the value of x would be?

✓ C3: Guiding question

Jul 11th 6:12:01 am

$$x = \frac{\log y - \log a}{b}$$

Jul 11th 6:12:54 am

Wow! Awesome job :)

✓ C2: Encouraging words / punctuation

Jul 11th 6:13:06 am

Thank you

Jul 11th 6:13:13 am

Bye

Jul 11th 6:13:15 am

You're welcome!

Jul 11th 6:13:20 am

Thanks for using Yup!

✓ Invites student back, warm send off

Jul 11th 6:13:25 am