



Jun 26th 1:55:29 pm

4)=0.5 5)~0.70

Jun 26th 1:56:16 pm

Hi! My name is Ms. Herring and I will be your tutor for this session. How are you? Introduction: Builds rapport with warm greeting Jun 26th 1:56:40 pm

Hi! I'm good how are you?

Jun 26th 1:56:56 pm

I'm quite well, thank you for asking! I'm checking your work now, but it looks like the problem may be asking for something a little different! Do you know what it means by expressing trigonometric ratios as fractions? A1: Determine student's level of understanding Jun 26th 1:57:49 pm

No:/ sorry

Jun 26th 1:58:22 pm

Okay! Thx

Jun 26th 1:59:10 pm

The trigonometric ratios this is asking about are sine, cosine and tangent. Does the phrase "soh cah toa" sound familiar at all? ✓ A1: Gauge student's existing knowledge

Jun 26th 1:59:22 pm

Yeah I've heard it but I don't know what it stands for

Jun 26th 1:59:56 pm

For example, it tells us that the cosine of an angle is equal to the side opposite the angle over the hypotenuse!

Jun 26th 2:01:06 pm

I know that probably doesn't make much sense just yet, but I'm confident that it will soon! Before



Jun 26th 2:01:46 pm

Oh ya! This Jun 26th 2:01:47 pm

> Super, that's exactly it! C2: Positive language Jun 26th 2:02:00 pm

Right triangles are angled where one of the angles is 90° right?

Jun 26th 2:02:27 pm

You're doing great! Do you know what the problem means by special right triangles? ✓ C3: Encourages student to share existing knowledge Jun 26th 2:02:47 pm

No

Jun 26th 2:02:58 pm

Then I'll explain! There are two types: 30-60-90 and 45-45-90! The first one, 30-60-90, has a 30 degree angle, a 60 degree angle and a 90 degree angle. Does that make sense?

Jun 26th 2:03:33 pm

Yes:)

Jun 26th 2:03:59 pm

They're special because their sides always follow the same ratio of lengths - just a sec and I'll draw out the 30-60-90!

Jun 26th 2:04:08 pm

Thanks!!!

Jun 26th 2:04:26 pm



Jun 26th 2:04:50 pm

Can you see that picture okay?

Jun 26th 2:04:55 pm

Yes

Jun 26th 2:05:22 pm

Great! For this problem, we want to find the cosine of the 60 degree angle. What sides do we need for that, with the ratios you sent me? ✓ C3: Guiding question Jun 26th 2:05:50 pm

Adjacent and hypotenuse

Jun 26th 2:06:48 pm

Super! In the picture I sent, what is the length of the side adjacent to the 60-degree angle? C3: Invite student input Jun 26th 2:07:03 pm

Х?

Jun 26th 2:07:33 pm

Or 2x?

Jun 26th 2:07:39 pm

X is correct! The side with 2x is also next to the 60-degree angle, true, but it's not the adjacent because it's the hypotenuse! Does that make sense? ✓ C1: Tutor redirects student's mistake without causing stress Jun 26th 2:08:20 pm

Yes!

Jun 26th 2:08:41 pm

Terrific! Can you plug in our adjacent side and our hypotenuse into the cosine fraction? C3: Encourage student to take the next step Jun 26th 2:09:01 pm

Yes one sec

Jun 26th 2:09:35 pm

I'll be patient :) C2: Reassure the student Jun 26th 2:09:41 pm

 $Cos60^{\circ}=x/2x$

Jun 26th 2:10:30 pm

Is that right?

Jun 26th 2:10:38 pm

Awesome job! Can we simplify that all, or cancel anything? **C3: Guiding question** Jun 26th 2:10:41 pm

Cancel out the Xs?

Jun 26th 2:11:09 pm

Great plan! What do we get when we do that? C3: Encourage student to take the next step Jun 26th 2:11:17 pm

Can you do Cos60°/2?

Jun 26th 2:11:46 pm

It might help to look at the answer you got before, actually - it's equal to what we should get here! Does that help? B2: Tutor ties step back to student's existing knowledge Jun 26th 2:12:19 pm

Sorry I'm confused:/

Jun 26th 2:13:16 pm

I'll try to explain differently, then :) We had cos(60) = x/2x, correct? C1: Adapts explanation to student's confusion Jun 26th 2:13:48 pm Yes Jun 26th 2:13:56 pm Were you asking about cos(60)/2 as a way of simplifying that, or just curious? I may have misunderstood! ✓ C1: Checks in with student to make sure they're on the same page Jun 26th 2:14:11 pm Yes that as a way of simplifying Jun 26th 2:14:32 pm I see! That won't quite work, because cos(60) is on the other side of the equal sign! Does it help if I write it as cos(60) = 1x/2x?Jun 26th 2:15:09 pm Okay and then where do you go from there to solve the problem? Jun 26th 2:15:46 pm What we get on the right side once we simplify is the answer! What do we get on the right side? C3: Guiding question Jun 26th 2:16:09 pm Oh! 0.5 Jun 26th 2:16:33 pm

> Right! What is that as a fraction? ✓ C3: Guiding question Jun 26th 2:16:39 pm

1/2 half!

Jun 26th 2:16:49 pm

That's correct! Nice work :) Do you have any questions about what we did for this one? C1: Check with the student to ensure understanding Jun 26th 2:17:02 pm

No:)

Jun 26th 2:17:10 pm

Super! For the next one, how about I draw out a 45-45-90 special right triangle first? Then we can use that to figure it out!

Okay! Sine= opposite over hypotenuse

Jun 26th 2:18:31 pm



Awesome job! And here's the special right triangle! How do you think we can use that to find the sine of a 45-degree angle?
Sine 45°= x/x square root of 2
Jun 26th 2:20:26 pm
Woohoo! You are right :) Can we simplify that one at all?
✓ C3: Guiding questions Jun 26th 2:20:51 pm
Can the Xs cancel out again?
Jun 26th 2:20:57 pm
Indeed they can! What do we get when we do that?
Jun 26th 2:21:05 pm
Sine45°=square root of 2
Jun 26th 2:21:33 pm
Was the square root of 2 on the bottom or the top of the fraction? C3: Guides student towards understanding their mistake
Bottom
Jun 26th 2·22·07 pm
Great Let's keep it on the bottom when we cancel then
✓ B2: Clarifies step further Jun 26th 2:22:26 pm
What does the fraction look like if we have sqrt(2) on the bottom and 1 on the top? C3: Guiding question Jun 26th 2:22:39 pm C3: Suiding question
0.7 approx
Jun 26th 2:23:18 pm
How do I turn that into a fraction:/
Jun 26th 2:23:32 pm
That's the right value, yes! Terrific! ✓ C2: Motivates student with encouraging language Jun 26th 2:23:38 pm
We had 1x/x*sqrt(2), right? What's left over if we remove the x from the bottom and the x from the top? ✓ C1: Adapts explanation to student's confusion Jun 26th 2:24:01 pm
1/2?
Jun 26th 2:24:32 pm
Or 1/ square root of 2

Jun 26th 2:24:48 pm

The second one - fantastic! If we plug that into a calculator, do we get 0.7? ✓ B2: Tutor ties information back to student's work Jun 26th 2:25:03 pm

Yes!

Jun 26th 2:25:13 pm

You're doing great! Would you like help with the third one, too? ✓ C2: Positive language Jun 26th 2:25:28 pm

Yes please. Just to make sure I'm doing it right:)

Jun 26th 2:25:49 pm

Tan60° = x square root of 3/x

Jun 26th 2:27:23 pm

That's correct! Nice work :) What do we get when we simplify that one? C3: Guiding question Jun 26th 2:27:56 pm

We get tan60°= square root of 3 over 1

Jun 26th 2:28:44 pm

And you get approx 1.7

Jun 26th 2:29:05 pm

No

Jun 26th 2:29:10 pm

Indeed we do :)

C2: Encouraging words / punctuation
Jun 26th 2:29:12 pm

No thank you so much! You have a wonderful day too:)

Jun 26th 2:30:14 pm

Thanks! Bye :)

Jun 26th 2:30:21 pm

Bye!

Jun 26th 2:30:27 pm