

# Addressing the Issue of Faith in a High School Math Class

By Karen Kidwell

Usually people do not think of a math class dealing with issues of faith, especially a public school math class, but thanks to involvement with Gateways, that is exactly what I was able to do.

I had attended a seminar by Eric Buehrer and then my church had some follow up sessions. In one of those sessions, Dr. J. P. Moreland answered my question about how I could bring truth to my high school students. I will summarize what he said and then show I applied it to my classroom.

Dr. Moreland posed the idea that to many people Christianity is not plausible. He gave the example of the war on Iraq. He had decided that it was a good choice to declare war on Iraq, but he was also willing to hear arguments from the other side. He wasn't willing to hear arguments on how the world is flat. That was not plausible in his worldview and what he believed about the nature of the earth.

Naturalism is a prevalent idea on high school and college campuses. It is the worldview that you cannot know something unless you can sense it with your five senses, sight, taste, smell, hearing, and touch. One can see how this worldview would think of any religious faith as implausible. Faith is based on things that are unseen and experiences that one cannot sense with the five senses. This is what my math lesson attempted to counteract.

I suppose that you can insert this information in other places in mathematics, but I teach Algebra 2 and so imaginary numbers seemed like a great bridge into this topic. What follows is how I used my lesson on imaginary numbers and addressed the issue of faith.

The square root of negative one. Can you find the value for this? No, because according to the definition of square root you have to find one number that when multiplied by itself is equal to the radicand. If you take one and multiply by one you get one and if you take negative one and multiply by negative one, you still arrive at one. No number multiplied by itself will let you get negative one, thus we have to put "no solution" or "not possible" as the answer to these types of questions.

Mathematicians do not like to say that they cannot do a particular problem. So what do they do? They make something up or assign a variable to it. That is exactly what they did with the square root of negative one. They assigned the letter  $i$  to the value of square root of negative one. The letter " $i$ " represents imaginary.

Now, I want to contrast the idea of imaginary with the idea of you cannot see it, because they are different ideas. The square root of negative one is imaginary, because there is no value for that question, but there are many things that you cannot see that are still very much real and true.

There is an idea out in our culture that you may or may not have come across yet that says the only things that are true are things that you can sense with your five senses. Part of what I hope to teach you in math is being able to think critically. To show an idea is not true, you can find a counterexample to the claim, just like you did in geometry.

There are many examples that contradict the view that the only things that are true are things that you can sense with your five senses.

For example each of you have ideas and thoughts that are real. If Jamie, here, is thinking of a pink elephant, she has that thought in her mind that she can see and know in her mind. But if I had a way of looking into her brain, I would not see a pink elephant.

In the same way each of you have a personality showing humor or seriousness, ideas and thoughts, and patterns of how you react to different things, yet if I examined your brain and insides I would not be able to find your personality, it is intangible. In literature, we use many ideas, like love, liberty, and justice that are not sensed by the five senses. Even the definition of science is not something you can sense. The definition is an idea and really falls in the category of philosophy.

Math, of course, also has great examples of truth that you cannot see. The number two is an idea. Two can be represented by 2 apples, and you can write down the number 2, but, again, these are only representations of 2. You cannot have a bumper sticker that says I break for the number two, because it cannot be sensed.

This is true of all numbers and concepts in math and yet we use them and we know them to be true. So, you can see imaginary numbers and numbers that you cannot see are very different.

Then, I continued with my lesson on imaginary numbers. Presenting these ideas is important. The hope is that students will understand there are things that are real and true and yet not sensed.