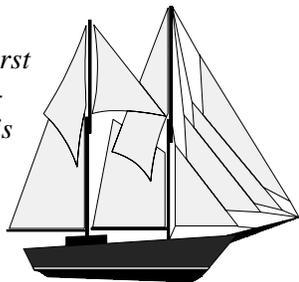


Interview with a Mathematician

Karen Amanda Yeats is from Halifax, Nova Scotia. She is a first year math student at the University of Waterloo, in Ontario. This year she won the Special K (a competition UW sets up for its frosh). Last year she did very well on the Descartes contest and quite well on a lot of other things (she received a scholarship for that).



Karen, what do you like most about math?

I like math because it's beautiful, and because working with it is fun. I considered going into music composition, and I really feel the aesthetics of the two subjects are very closely related. The search for elegance.

What do you mean by elegance, Karen?

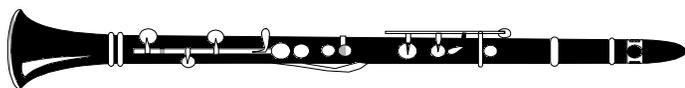
Elegance is a particular type of beauty, the type that comes from something very simple giving rise to something very complex or profound. In the same way that often you know when you've done a good job performing a piece of music when you made it seem effortless.

What's it like to study math at the university level?

I'm really enjoying it. We do a lot more theoretical stuff than I did in high school or junior high. For me the theoretical stuff is far more interesting than calculations and applications. The assignment questions actually necessitate thought rather than just application of what was learned. Because of the focus on proofs the level of rigour required is much higher than before as well.

What is rigour, Karen?

Proving something rigorously is proving it so that not only do you believe it and not only can you convince other people by your argument, but you can show that no one can possibly ever find that you were wrong. It is very satisfying to be able to show without a shadow of a doubt that something is mathematically true.



What other interests do you have besides math?

Music, as already mentioned, is a major interest of mine. I play clarinet and recorder, I sing in choirs and I compose when I have the time. I'm currently in two orchestras, a baroque trio, a chamber choir and I take private lessons on recorder. I really enjoy these things. They take up a lot of my time but really I wouldn't be happy without them.

What advice would you have for students who want to excel in math?

Read things on the subject. Write lots of math contests, because they're fun and the more you write the better you do. Find someone to coach you, there are lots of teachers who would love to have a student who truly loves math rather than just needs it to graduate or do something with. Most importantly, never stop enjoying it. In fact, whatever you want to excel in make sure it is something that at times just leaves you with a feeling of wonder at the marvelousness of the universe.



Anything else, Karen?

Don't ever feel that you need to justify math by its usefulness. Yes it is useful, in many, many ways, but I don't value it for its use. Its value is in its elegance. In this way I feel math is more of an art than anything else. So many people ask what use theoretical math can have, what good is it, what is it for? For me the answer to those questions could all be negative and math would still be worth doing. Music has no practical justification, nor do the other fine arts, math doesn't need one either.

SOMETHING TO THINK ABOUT

1. Why does Karen like math?
2. What do you like about math?
3. How is math like music?
4. What does Karen mean by rigour?
5. What can you do to become better at doing math?