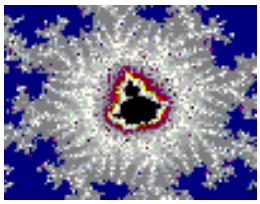

Sinclair Mathnet

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FROM THE CHAIR

Improving student success in mathematics courses has long been a very high priority of the Department of Mathematics. Recent steps have been taken that would suggest that it is now becoming a high priority of the college.

But why are students not more successful in their math courses? I've heard a variety of explanations: Students often do not arrive in class with mastery of the prerequisite material. Sometimes instructors do not present material in a way that is motivating and engaging. Mathematics can be intellectually rigorous and demands an unusual degree of diligence, mental activity and mathematical intelligence. Many students do not attend class and complete assignments consistently. Sometimes we fail to show students the connection between mathematics and their personal or professional lives.

Undoubtedly there is some truth in all of these explanations and others as well. And because there are many causes, many solutions are recommended for the problem: use more technology; enforce prerequisites; have a mandatory attendance policy; change teaching methodologies; provide more outside the classroom resources to help, etc. But it is also because there are so many causes that no one of these remedies is a panacea. Many and varied strategies must be implemented.

In any case, knowing the causes is important not only because it gives insight into discerning the possible remedies, but because it may also provide for a more realistic understanding of what can be expected from the various proposed remedies. I would like to suggest two possible additional causes as to why American students may have trouble learning mathematics. They are reasons that arise from our culture and that are rarely (if ever) talked about, but that, if true, we would do well to I think recognize. While I have written on this topic before that the time is ripe for giving thought to these matters again.

The first has to do with objective truth. Much of modern day philosophy either assumes that there is no such thing as objective truth or at least assumes that we are unable to discover it. This thinking permeates our culture in ways that are so ubiquitous that we barely notice it. It began when Rene Descartes emptied his mind of all ideas, vowing to only reinstate them one at a time upon absolute verification of the truth of each one. Many agreed with his first step by which he verified his own existence. But philosophers did not agree that he met his own criteria for establishing further truths and so, rather than meeting those criteria or establishing more feasible criteria, many modern and post-modern philosophers gradually came to the conclusion that we could never know anything at all for sure and then to the supposition that there are not even any universal truths to be known anyway.

This has brought us to the point in our modern day American culture in which the idea of objective truth and the notion that some things are right and some things are wrong regardless of what anyone may think about them or how the vote on them comes out are viewed as antiquated ideas not to be taken seriously. We are taught to say, "I'm ok, you're ok**,"** and "It may not be right for you, but it is right for me." Even religious organizations change their teachings on moral issues to reflect modern norms because their teachings are not regarded as being based on any absolute truths since there are none. The student who has been raised in a culture in which there are no absolutes has not been very well prepared for the mathematics classroom in which the existence of absolute truths is an essential and unspoken assumption. Problems have a right answer and usually only one right answer. The Pythagorean Theorem is *always* true in Euclidian geometry. After being immersed in a society in which his opinion of what is right or wrong is just as good as anyone else's and in which he is expected to tolerate everyone else's opinion, the mathematics student may

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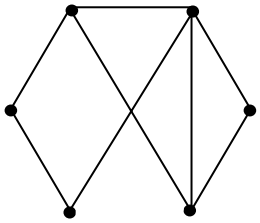
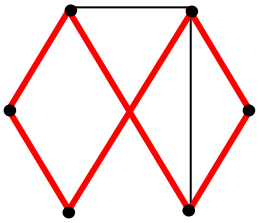
Test Your Skills

In the branch of mathematics called Graph Theory, a graph consists of *vertices* (dots) and *edges* (line segments connecting vertices). The following is a graph with 6 vertices:

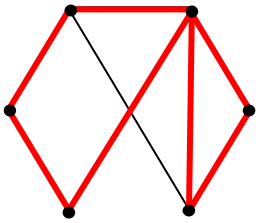


A *Hamiltonian circuit* through a graph is a path passing through each vertex of the graph exactly one time and returning to the starting vertex.

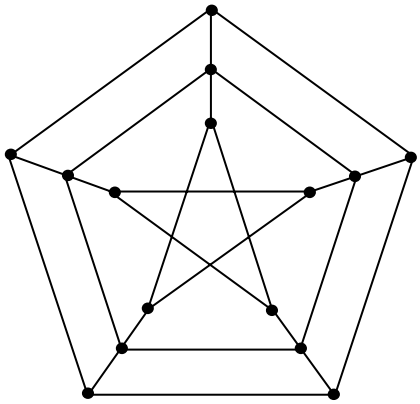
This is a Hamiltonian circuit:



This is not:

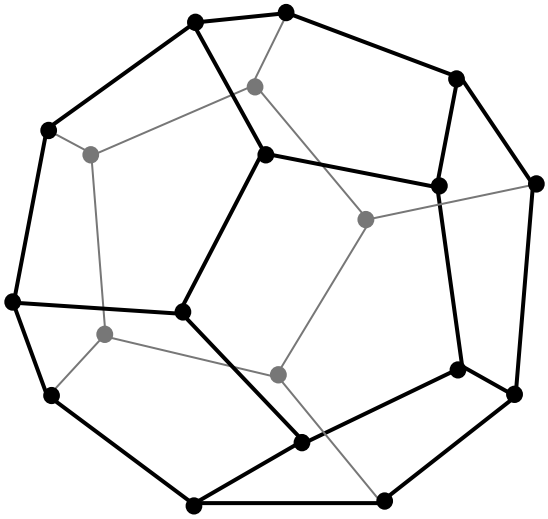


Can you find a Hamiltonian circuit through this graph?



The Hamiltonian circuit is named after a nineteenth century mathematician, Sir William Rowan Hamilton, who created and sold a puzzle having the form of a dodecahedron. Each vertex bore the name of a city. The object of the puzzle was to traverse the edges of the dodecahedron visiting each city exactly once and finishing at the city at which the route started.

Can you find a Hamiltonian circuit around this dodecahedron?



Harvey's Joke Corner

Proverb: If it can't be said in ten words or less, it's not worth saying.

Movies we probably will not see:
Titanic – The Sequel
Batman Begins – The Prequel
The Lord of the Rings Trilogy – Part IV

The new Liberal Arts and Sciences Division Casino opening in the Arcade Building will be called the "LAS" Vegas Casino.

Special flowers available at Calculus conventions: "maxi"mums and "mini"mums.

(Continued from page 1) find it a little uncomfortable to discover that his opinion is not worth anything when he is solving an algebra problem. In math class students are expected to take quite a different view about the world in which we live than they are expected to take *by* the world in which we live. Many are disconcerted and rail against this because they find it so contrary to what they experience in their daily lives. It can inhibit their ability to learn mathematics.

The second cause I would like to mention has to do with our sometimes having only a partial understanding of freedom. Freedom is held in exceedingly high esteem in our country and rightly so. Our country has been a shining example in the course of history and among the nations of the world in bringing political, religious and economic freedom to people in a way that has never been so broadly experienced in the history of mankind. We are very jealous of all our freedoms and do not take it kindly when others interfere with them. But we do not do a very good job of making and understanding the distinction between freedom *from* and freedom *to.* We are very anxious to have freedom *from* having to comply with rules and regulations and *from* having to work too hard and experiencing too much unpleasantness. But we often don't understand that the more we are free *from,* the less we are free *to.* The algebra student who is freed *from* having to attend all the classes and do all the homework and freed *from* having to repeatedly carry out so many dull, boring, tedious exercises in favor of some other activities that are perhaps more fun and less oppressive may find that she is not free *to* study calculus, get a job and achieve her dreams.

Many of our students (and perhaps some of us) do not understand that discipline, whether self-imposed or externally imposed, while perhaps restricting our freedom *from,* enhances our freedom *to.* It is through discipline that the musician gains the freedom *to* perform Mozart, or that the baseball team becomes free *to* enjoy the taste of victory, or that the artist becomes free *to* produce a thing of beauty. But when we are not willing to give up our freedom *from*, we unwittingly restrict our freedom *to.* I think that American students need to learn to do this better and we need to learn to help them better.

Al Giambrone ■

SPRING QUARTER IMAGES

Students listen and work intently at the Department's High School Math Invitational.

The new teacher prep sequence is off to a great start.

Chad Joan placed first not only in the Winter round of the AMATYC Math Competition, but was Sinclair's overall winner for the 2005-2006 year as well.

Newlyweds Tina and Tony Ponder and not-quite-so-newlyweds Linda and Moez Ben-Azzouz enjoy the party held in their honor.

Faculty Feature – Earl King

One of our colleagues has decided to head north. After teaching full-time for the Math Department since 2002, and part-time for the two years previous to that, Earl King leaves us to move to Canada.

Earl opens his gift card at his farewell party.

I asked Earl what brought him to Sinclair in the first place, and in fact his first teaching stint here was back in 1980, when he taught here part-time for two years. At that time he was nearing his retirement from the United States Air Force, which occurred in 1982. He went on to work for PRICE Systems LLC, a software development and services company, where he worked for 20 years. He says, "After my second retirement, I needed to keep busy. Started teaching part-time, enjoyed it so much that I applied for a full-time position." But please do not think of this as his third retirement, as he has every intention of teaching up in Canada, and he has already pursued some possibilities.

So why is Earl moving to Canada? He has a daughter who is in Sault Ste Marie, Ontario. She lives there with her husband and two boys, who are 11 and 8, where she works as a caseworker for the Ontario Social Services Department. Earl also has a son who is an attorney with the Federal Bureau of Investigation in Washington, D.C. His son and daughter-in-law are expecting their second child in August. Earl's wife passed away in 1998. Besides enjoying golf and tennis, Earl hopes to become a fisherman while in Canada. He also is looking for something to do in the winter, as "they have long ones up there."

Earl has been very busy in the last few years, running "catch-up" sessions for Math 101 and 102, and leading some of the Test Review Sessions for 101 and 102. For the last two years, he has been one of the department's "retention specialists" with the Math Retention and Success Project. In this capacity, he provided Math Study Skills workshops, made pre-quarter phone calls to students who did not pass the prerequisite course for Math 102, and tutored students an average of ten hours per week.

When asked what he would miss about Sinclair, Earl says, "I will certainly miss all of my friends in the Math Department. I have enjoyed my time at Sinclair more than any of my previous employments. In fact, I don't consider this a job- more of a pleasant experience. I wish the Math Department all the best for the future and only hope that those members of the department enjoy being here as much as I have." Earl also says he will miss the students that he has had in class, tutored, or known, but he adds, "I will NOT miss grading!"

We all wish you the best for the future, too, Earl.

Susan Harris ■

PTF of the Year Award

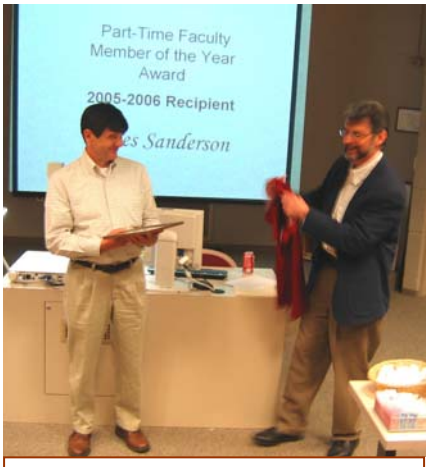
A hearty congratulation goes out to Jim Sanderson, this year's recipient of the Math Department Part-time Faculty Member of the Year Award.

Jim has been teaching part-time for the Math Department since the spring of 1985. He says that his favorite classes to teach are Elementary Algebra and Intermediate Algebra, Math 101 and 102. He adds, "Math 101 and 102 provide the greatest opportunity for influencing the success of students in the future study of mathematics." He has also taught Math 105, Business Math, and Math 117, Trigonometry.

Jim has four children and six grandchildren, and resides in the Dayton area where he has lived for the last thirty-five years.

Well done Jim!

Susan Harris ■



Jim Sanderson