Problem of the Week Contest

Spring 2019, Number 8

Department of Mathematics, Gettysburg College

Posted: Friday, April 5.

Solutions Due: Friday, April 12, 5:00 p.m..

Send solutions to bkenedy@gettysburg.edu or put solutions in the marked envelope in the hallway outside Glatfelter 215.

The contest is open to all Gettysburg College students. Up to three people may work together on a submission. Make sure your name is on your submission and that any sources are properly cited!

Another nice calculus exam

I took a calculus exam where I was confused about the chain rule: I thought that

\[(f \circ g)'(x) = f'(x)g'(f(x)).\]

Nevertheless, when my professor gave me two functions \(f(x)\) and \(g(x)\) and asked me to find \((f \circ g)'(x)\), I got it right!

Assuming that \(f(x) = x^3\), find some possibilities for what the function \(g(x)\) is — try to find a lot of them!