

MATHEMATICS PROBLEM 163

Find a function f such that the inverse function f^{-1} of f is the same as the derivative f' of f . That is, $f^{-1} = f'$. (Recall that the inverse function is defined by $f^{-1}(y) = x$ if and only if $f(x) = y$.)

(This problem was proposed by Professor Irina Popovici.)

Each person submitting a correct solution to Mathematics Problem 163 by 1800 Friday 16 March 2007 will be recognized as a solver when the next problem is announced. Submit solutions to Prof. Wardlaw at wpw@usna.edu.

Correct solutions to Mathematics Problem 162 were submitted by Midshipmen Douglas Andrade, Roarke Baldwin, Eric Bowen, Kevin Breach, Christine Cairol, Melanie Doliente, Alex Dulude, Andy Duwell, Kyle Ferguson, Tab Gant, Victoria Graefin, Jordon Holt, Casey Howsare, Jessica Kelz, Brigid McPeak, Reeve Meck, Abby Mennerich, Kirby Mills, Guy Molina, Lawrence Overway, Garrett Sander, T. R. Talstein, Evan Trant, Andrew Turow, Sean Ublacker, Edsel Vierra, and S. J. Vigil, LCDR Kyle Kliewer, and Professors Dan Chesley, Russell Jackson, and Jody Lockhart.

My solution to Mathematics Problem 162 is on the back of this page and on the Mathematics Department bulletin board on the third floor of Chauvenet Hall across from the Mathematics Department Office.

MATHEMATICS PROBLEM 162

See if you can discover the secret three word message in two consecutive rows of the completion of the Sudoku below. (The Sudoku was kindly supplied by Prof. Meyerson.)

Sudoku rules: Fill in the blanks so only 9 different letters appear, and every row and column contains 9 different letters. Also, if the 9x9 puzzle is divided into 9 blocks of size 3x3, each of these 3x3 blocks must contain 9 different letters. The solution is unique.

	R			T	I	N	M	A
M	J			R		T	O	I
I	A		O			H	J	

	I		M	N		O	H	T
N	O	R	I		T	J	A	M
	T						I	
J		O	R	I			T	
	M		T			I	N	J
T	H		N		J	M	R	O

Solution

<i>O</i>	<i>R</i>	<i>H</i>	<i>J</i>	<i>T</i>	<i>I</i>	<i>N</i>	<i>M</i>	<i>A</i>
<i>M</i>	<i>J</i>	<i>N</i>	<i>H</i>	<i>R</i>	<i>A</i>	<i>T</i>	<i>O</i>	<i>I</i>
<i>I</i>	<i>A</i>	<i>T</i>	<i>O</i>	<i>M</i>	<i>N</i>	<i>H</i>	<i>J</i>	<i>R</i>
<i>A</i>	<i>I</i>	<i>J</i>	<i>M</i>	<i>N</i>	<i>R</i>	<i>O</i>	<i>H</i>	<i>T</i>
<i>N</i>	<i>O</i>	<i>R</i>	<i>I</i>	<i>H</i>	<i>T</i>	<i>J</i>	<i>A</i>	<i>M</i>
<i>H</i>	<i>T</i>	<i>M</i>	<i>A</i>	<i>J</i>	<i>O</i>	<i>R</i>	<i>I</i>	<i>N</i>
<i>J</i>	<i>N</i>	<i>O</i>	<i>R</i>	<i>I</i>	<i>M</i>	<i>A</i>	<i>T</i>	<i>H</i>
<i>R</i>	<i>M</i>	<i>A</i>	<i>T</i>	<i>O</i>	<i>H</i>	<i>I</i>	<i>N</i>	<i>J</i>
<i>T</i>	<i>H</i>	<i>I</i>	<i>N</i>	<i>A</i>	<i>J</i>	<i>M</i>	<i>R</i>	<i>O</i>

The secret three word message is **"MAJOR IN MATH"**.