Mathematics and Science Partnership (MSP) Competitive Grant Program

The Virginia Department of Education is responsible for the administration of this program. In this competition, MSP grants will be awarded to support successful proposals that will provide programs and resources to offer high-quality professional development for (1) elementary (K-5) science teachers in schools Accredited with Warning in science; and (2) secondary Algebra I teachers in high schools with pass rates less than 70 percent on the Algebra I end-of-course Standards of Learning (SOL) test for the entire 2004-2005 testing year.

For elementary science, the Virginia Department of Education will award up to $225,000 per grant for the first year of the program. A program is expected to continue for three years, with subsequent funding in years two and three based on adequate performance in the current grant cycle and the continuation of funds from the United States Department of Education.

For high school mathematics, the Virginia Department of Education will award up to $225,000 per grant for the first year of the program. A program is expected to continue for three years, with subsequent funding in years two and three based on adequate performance in the current grant cycle and the continuation of funds from the United States Department of Education.

For more information, including the RFP, see Supt. Memo #91 at

http://www.doe.virginia.gov/VDOE/suptsmemos/2006/inf091.html.

➔ Please note that the application deadline is June 30, 2006.

Answer to *A Unique Triad* (p. 3): It is required to find distinct integer solutions of the set of simultaneous equations, $x + y = mz$, $y + z = nx$, $x + z = py$, where m, n, p are positive integers. The condition that this set of homogeneous equations has a solution is

$$\begin{vmatrix} 1 & 1 & -m \\ -n & 1 & 1 \\ 1 & -p & 1 \end{vmatrix} = 0 .$$

That is, $mnp = m + n + p + 2$. Clearly, (2, 2, 2) satisfies this equation. Any other solution must have one variable, say p, equal to 1. Whereupon, $mn = m + n + 3$. Clearly, (3, 3) satisfies this equation. Any other solution must have one variable, say n, less than 3. Thus, (5, 2) is the only other solution. Hence, there are but three triads of positive integer, (2, 2, 2), (1, 3, 3), and (1, 2, 5).

To each of these triads corresponds a set of three simultaneous equations in x, y, z. The solutions of these sets are (k, k, k), (k, k, 2k) and (2k, k, 3k), respectively.

Therefore, the only set of distinct integers meeting the conditions of the problem is (1, 2, 3).

ON-Math, the NCTM electronic journal, is free to everyone until June, 2007. Go to **http://my.nctm.org/eresources/journal_home.asp?journal_id=6** to see a collection of interactive articles that are available for classroom use.