IN DISCRETE MATHEMATICS

Using Discrete Mathematics in the Classroom

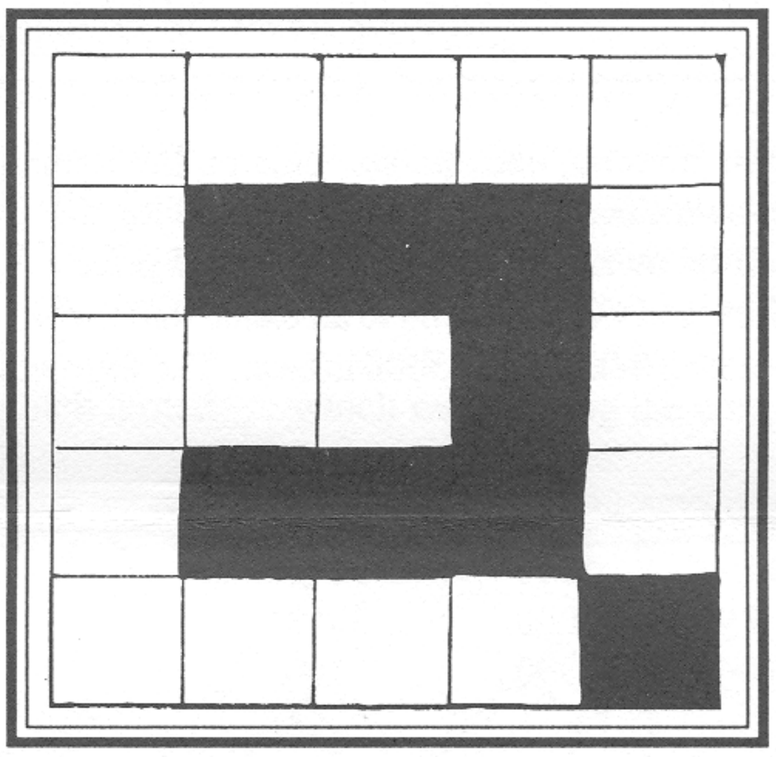
Issue #3 *August 1993*

Speaking discretely...

by Joseph G. Rosenstein

This is the third issue -- it took longer to produce than we intended, but here it is, and we hope that again the Newsletter meets your expectations!

Featured in this issue is a discussion of codes, including the ''Have-you-seen ... '' article at the right and the ''Mini-bibliography'' on page 9, both by Joseph Malkevitch; the picture at the right represents the problem, discussed on page 9, of receiving and interpreting data from space that is distorted by ''noise''. Also featured is fair division; the cartoon on page 12 and the accompanying article on page 10 address the problem of fairly dividing a cake, and the ''Dear Ann Landers'' article on page 2 addresses the problem of fairly dividing an estate. Also included in this issue are articles dealing with Pascal's triangle, the NBA draft lottery, and collecting for Goodwill.



You are invited to use these pages to share with us your thoughts about discrete mathematics, your classroom activities and experiences, your students' response to a new topic, etc. A one page summary of an interesting lesson would be valuable to all of your colleagues.

You may be looking for an opportunity to help get your colleagues interested in and excited by discrete mathematics. Participants in the *Rutgers Leadership Program in Discrete Mathematics* are available to conduct one-day workshops in over half the fifty states. Further information is provided on page 5, which can also serve as a flyer for our ''workshops in your district'' program; you are welcome to make copies of the flyer and distribute them at conferences.

Send us your comments for the next issue -- and enjoy this one!

In This Issue

Have-you-seen...

by Joseph Malkevitch

...the many articles in recent years dealing with codes and their applications.

Codes are a part of our daily lives and our daily vocabulary. We see a zipcode on nearly every letter that we receive. Every item that we purchase has a universal product code on it. Hardly a day goes by when the newspapers do not tell of some new aspect of the genetic code being discovered. Bar codes are used to track books at our libraries and our luggage at the airports. Codes published in the newspaper make it easier for us to program our VCR's.

Codes are also at work in less obvious ways. They are making it possible to have videophones, enjoy music from our compact disc players, get a picture back from Saturn, transfer money between banks, and keep our embassies in foreign countries advised on political developments. Codes continue to be used by spies and the military. (Study of secret codes allows for interesting joint lessons between social science and mathematics. Codes played an important role in the World Wars and, during World War II, in both the Atlantic and Pacific theaters.) Yet how many people realize that mathematics is at work in designing and implementing nearly all of these codes?

Why do codes exist? Thinking about the codes described above, it turns out that codes often serve different functions in different contexts.

Sometimes codes exist to hide information. This is true in the case of diplomatic and military codes. Yet hiding information is not the monopoly of the military and the State Department. As modern business practices have grown, the need for exchanging information between businesses in secret has grown.

(Continued on page 8)