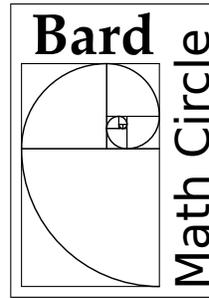


## Problems

1. Six people are estimating how many balls there are in a box. The guesses are: 52, 59, 62, 65, 49, 42. Nobody guessed it right, and the differences between the guesses and the actual number of balls are: 1, 4, 6, 9, 11, 12. How many balls are in the box?
2. One day 12 children from a class went to see a movie. On another day 9 children from the same class went to see a puppet show. 5 children attended both programs, and 10 children from the class did not go to either program. How many children are there in the class?
3. A school wants to rent a bus for a trip. They narrowed their choices to two options: one company asks \$350 for the bus each day, plus \$2 for every mile. The other company wants \$300 for the bus every day but \$2.50 for every mile. How can they decide which company the school should choose?



March 2013

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## Student Corner

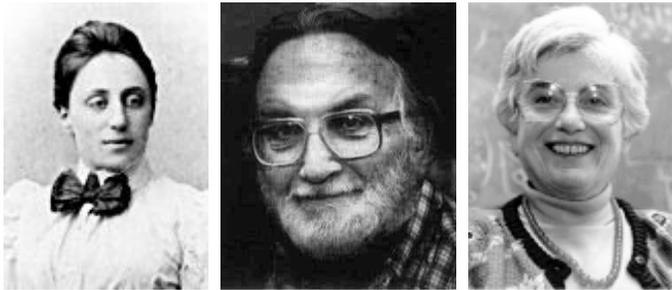
Billy the bookworm loves chewing books. This morning, he found a bookshelf shown to the right. The width of each book is 2" of paper, with a 1/2" cover on either side. If Billy starts burrowing from the first page of *Growing Old* to the last page of *Fighting Crime*, how far will he have eaten?

(Communicated to the math circle, via Katie.)



# March Math People

# Puzzles



## Emmy Noether

March 23, 1882 – April 14, 1935.

Truly one of the mathematical greats, with research in abstract algebra, especially groups, rings and fields. Many graduate departments in mathematics sponsor a “Noetherian Ring”, that is, math research seminars to nurture female math graduate students (of course, men are also welcome). The term *Noetherian Ring* is also a technical term for an algebraic structure with the ascending chain condition on ideals.

[www.agnesscott.edu/lriddle/women/noether.htm](http://www.agnesscott.edu/lriddle/women/noether.htm)

## Max Zorn

June 6, 1906 – March 9, 1993.

Best known for *Zorn’s Lemma*, that every closed chain of sets has a maximal member. This has been shown to be equivalent to both the Axiom of Choice and the well-ordering principle. Just for fun, ask a math major what this means, and to explain Zorn’s Lemma in simple terms!

[www-history.mcs.st-andrews.ac.uk/Biographies/Zorn.html](http://www-history.mcs.st-andrews.ac.uk/Biographies/Zorn.html)

## Vera Pless

March 5, 1931–

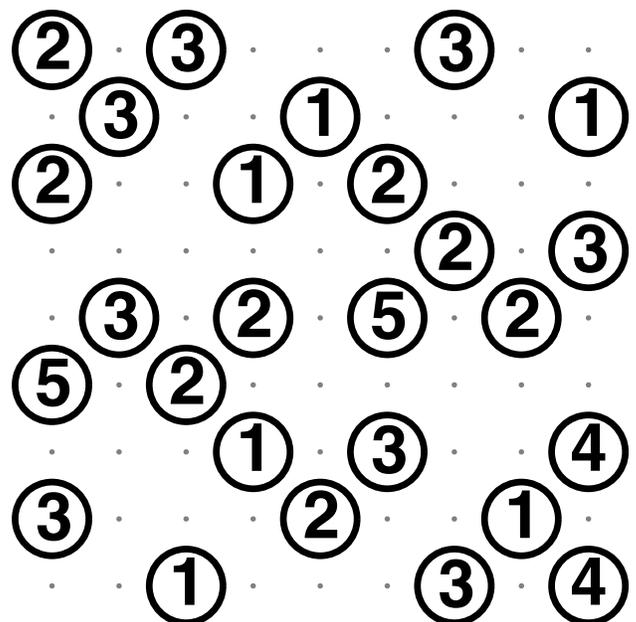
Vera Pless was an undergraduate at the University of Chicago and received her Ph.D from Northwestern in 1957 with a thesis on “Quotient Rings of Continuous Transformation Rings.” She is perhaps most famous for her work in Coding Theory.

[www.agnesscott.edu/lriddle/women/pless.htm](http://www.agnesscott.edu/lriddle/women/pless.htm)

**KenKen:** Place the numbers 1, 2, 3, 4 and 5 in the grid below, so that each appears once in each row and column. The numbers in each cage, when combined with the operation given, must result in the target number shown. [lavoze.bard.edu](http://lavoze.bard.edu)

11+		45×		
	7+		6+	
1-			4×	8+
	9+			
		11+		

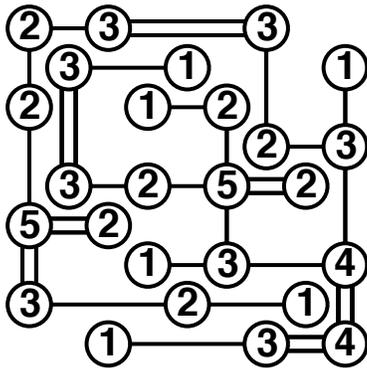
**Bridges:** Connect islands with single and double bridges. All bridges must be vertical or horizontal, and the numbers indicate exactly how many bridges leave the island. Bridges may not cross, and the result is *simply* connected. [krazydad.com](http://krazydad.com)



## Answers (Not the same as solutions!)

53, 26, 100, 22.

<sup>11+</sup> 4	2	<sup>45×</sup> 5	3	1
5	<sup>7+</sup> 1	3	<sup>6+</sup> 2	4
<sup>1-</sup> 3	4	2	<sup>4×</sup> 1	<sup>8+</sup> 5
2	<sup>9+</sup> 5	1	4	3
1	3	<sup>11+</sup> 4	5	2



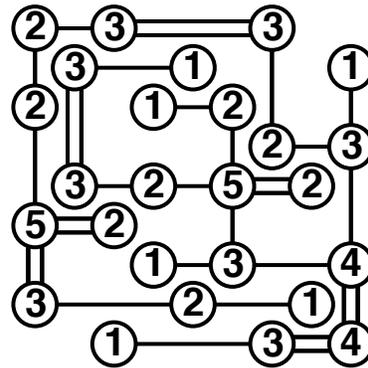
## Upcoming Events

Kingston: Saturday, March 9th  
 Math Teachers' Circle: March 18th  
 Kingston: Saturday, April 13th (Tesselations)  
 Kingston: Saturday, May 11th (Chalk Walk)  
 Info: [bardmathcircle.blogspot.com](http://bardmathcircle.blogspot.com).

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