



**Julia Robinson
Mathematics
Festival**



Cat, Dog, and Mouse Magic

A Mind-Reading Number Trick

Inspired by William Wallace
Adapted by Nancy Blachman
Designed by Freddy Bendekgey

Magic Card Trick (Not a CD)

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A Mind-Reading Number Trick

By William Wallace

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Instructions

Ask someone, whom I'll call Rowan, to choose a secret number between 0 and 80. Display one of the four cards with the numbers 0 - 80 and ask Rowan to tell you the color (blue, green, or red) or the animal (cat, dog, or mouse) with the secret number. Repeat this procedure with the other three cards. Then tell the audience Rowan's secret number.



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Method: Calculate the secret number as follows: Start off with the number 0 in your head. If Rowan specifies **blue** (cat), **green** (dog) or **red** (mouse), find the smallest **blue** (cat), **green** (dog), or **red** (mouse) number on the card, and add that number to the sum in your head. Repeat this procedure for the next three cards. After the 4th card, the sum is the secret number!

Example: Suppose the player chooses the number 42.

- On card 1, the number 42 is **green** (dog) and the smallest **green** (dog) on that card is 27. So start with 27 as the number in your head.
- On card 2, the number 42 is **green** (dog) and the smallest **green** (dog) number on card 2 is 9. So add 9 to the sum in your head to get 36.
- On card 3, the number 42 is **blue** (cat) and the smallest **blue** (cat) number on card 3 is 6. So add 6 to the total in your head, making the total in your head 42.
- On card 4, the number 42 is **red** (mouse) and the smallest **red** (mouse) number on that card is 0. So the number in your head remains 42, the secret number!



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