

Algebra Magic (Binomial x Binomial)

A Think of a Number Trick!

1. Think of a number.
2. Add 3.
3. Square the result.
4. Subtract 9.
5. Divide the result by your original number.
6. State your result.

The Secret

You can get the original number by subtracting 6 from the answer.

The Algebra

1. Let the number be n .
2. $n + 3$
3. $(n + 3)^2 = n^2 + 6n + 9$
4. $(n^2 + 6n + 9) - 9 = n^2 + 6n$
5. $(n^2 + 6n) \div n = n + 6$
6. $(n + 6) - n = 6$

The 49-er Trick

Have your friend secretly roll two dice. Ask your friend to write down the answers to these four steps:

1. Multiply the top two numbers.
2. Multiply the bottom two numbers.
3. Multiply the top of one by the bottom of the other.
4. Multiply the other top and bottom.
5. Ask your friend to add up the four answers.
6. You tell your friend the total.

The Secret

The total is always 49.

The Algebra

Let the numbers be a and b .

1. ab
2. $(7-a)(7-b) = 49 - 7a - 7b + ab$
3. $a(7-b) = 7a - ab$
4. $b(7-a) = 7b - ab$
5. $ab + (49 - 7a - 7b + ab) + (7a - ab) + (7b - ab) = 49$