

INVERSE-operations

7.3.1 Why does it work?

Inverse Operations



7-21. THE MATHEMATICAL MAGIC TRICK: Have you ever seen a magician perform a seemingly impossible feat and wondered how the trick works?

- a) Follow the steps in the table below to participate in a math magic trick.
- b) What do you notice? Why does it work?

Steps	Number 1	Number 2
Pick a number	5	2
Add five	10	7
Double it	20	14
Subtract four	16	10
Divide by two	8	5
Subtract your original number	3	3
Answer	3	3

7-22 In the previous problem "magic tricks," did you notice how *multiplication* by a number was later followed by *division* by the same number? These are known as **inverse operations** (operations that "undo" each other).

- a) What is the inverse operation for addition?
- b) What is the inverse operation for multiplication?
- c) What is the inverse operation for "Divide by 2"?
- d) What is the inverse operation for "Subtract 9"?

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a) On front

b) I notice that whatever number I choose, the answer will be 3.

It works because inverse operations "undo" everything.

pick a number \rightarrow subtract your number
double it \rightarrow divide by two

7-22

The inverse of :

a) addition is subtraction.

b) multiplication is division.

c) divide by two is multiply by two.

d) subtract 9 is add 9.