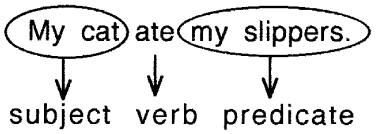
Solving Addition and Subtraction Equations

Some basics about equations:

- The equal sign is the linking verb in the sentence.
  What's written on the left or the right of it are called the different sides of the equation, as in English there would be the subject and the predicate.

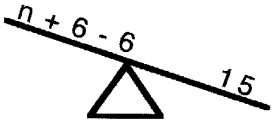


- In order for us to rightly call it an equation, both sides must be equal to each other.

Take the equation $n + 6 = 15$ for example. The $n + 6$ has the same value as the 15.

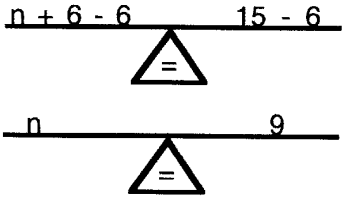
Think of it as a balance scale or teeter-totter where both sides weigh the same.

- The object is to get the variable all by itself on one side of the equation, so it'll be in the form of n = ____. In order to get n by itself, we need to get rid of the + 6 next to it. The way we do that is to use the opposite of "plus" to undo the "plus." This is called using the **inverse operation**. Think of the "inverse" operation as the opposite operation. The inverse of addition is subtraction, and vice-versa. So, if I put a "- 6" (that's minus 6, not negative 6: remember, we're undoing an operation) by the + 6, that would undo the + 6.

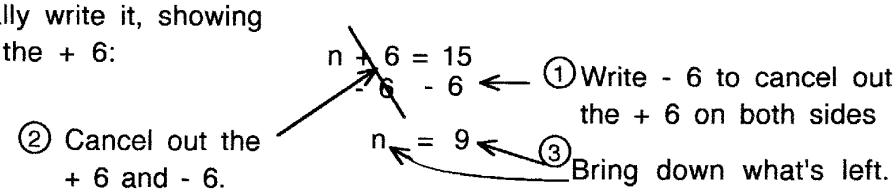


The problem now is that I removed something from one side of the balance. The two sides are no longer in balance, or equal. That brings us to the golden rule of algebra: "Do unto one side of an equation as you do unto the other."

Since I'm subtracting 6 from one side, I must do the same to the other side.



Now, the + 6 and the - 6 cancel each other out (in other words, they have no effect on the n), so we can just forget about them. That leaves us with just n on the left and 15 - 6, which is 9, on the right.

Therefore, the answer is: n = 9.

Here's how you really write it, showing the cancellation of the + 6: