

Simple Equations

Simple equations take the form $4x + 1 = 29$ or $5x - 3 = 2x + 9$. To solve them we have to end up with $x = ?$.

For the first simpler one we can use the caterpillar method.

$$x \times 4 + 1 = 29$$

$$x \div 4 - 1 = 29$$

Now work back from 29 to get $x = (29 - 1) / 4 = 7$

The equation $5 - 2x = 9$ is similar. Using the method above we have,

$$x \times (-2) + 5 = 9$$

$$x \div (-2) - 5 = 9$$

Then $x = (9 - 5) / (-2) = -2$

The second equation is trickier. We have x 's on both sides. We can move the $2x$ to the left hand side and the -3 to the right hand side. We have to use the rule, "if it changes side, it changes sign". The $2x$ becomes $-2x$ and the -3 becomes $+3$. We obtain

$$5x - 2x = 9 + 3$$

Both sides now simplify to give

$$3x = 12 \quad \text{Then } x = 12 / 3 = 4$$

The most important thing to remember is to change the signs of whatever you move. A term only changes side if it moves to the other side of an equals sign, and if it moves to the other side of an equals sign it always changes sign.