

# Maths Star

## Solving Equations

### How to do it!

When we are solving equations, we are trying to find the value of the letter. However, it's often surrounded by other numbers that we need to eliminate.

Scenario 1: Solve  $x + 2 = 7$

Remember that we want  $x$  on its own, so we need to get rid of the  $+2$  that is sitting next to it. The way to cancel out a  $+2$  is to take away two, because  $+2 - 2 = 0$ . BUT, we must ALWAYS do the same to both sides, so . . .

$$\begin{aligned}x + 2 &= 7 \\x + 2 - 2 &= 7 - 2 \\x &= 7 - 2 \\x &= 5\end{aligned}$$

Scenario 2: Solve  $3a = 9$

We want  $a$  on its own, but we have  $3a$ . When a number and a letter are right next to each other, it means you are multiplying them, so  $3a$  means  $3 \times a$ . The way to get just one  $a$  on its own is to divide by 3. BUT, we must ALWAYS do the same on both sides, so . . .

$$\begin{aligned}3a &= 9 \\ \div 3 \quad \div 3 & \\ a &= 9 \div 3 \\ a &= 3\end{aligned}$$

Scenario 3: Solve  $2y - 2 = 10$

Here, we have a mixture of things to do. Always do the addition or subtraction first, then do the dividing part.

$$\begin{aligned}2y - 2 &= 10 \\ 2y - 2 + 2 &= 10 + 2 \\ 2y &= 12 \\ \div 2 \quad \div 2 & \\ y &= 6\end{aligned}$$