

YOU & MATHS Prove it! Use algebra to prove that $(x^2 + x)(x - 1)$ divided by $x^2 - x$ gives $x + 1$, as long as $x \neq 1$, $x \neq 0$.

You can use a trick and factor $x^2 - x$:

$$x^2 - x = x(x - 1).$$

Now your division is:

$$(x^2 + x)(x - 1) : [x(x - 1)].$$

As long as $x \neq 1$, this is equivalent to

$$(x^2 + x) : x.$$

Again, factoring $x^2 + x$ you get

$$x^2 + x = x(x + 1),$$

so the division is

$$x(x + 1) : x$$

and as long as $x \neq 0$, you get $x + 1$, which is what you needed to prove.