Equivalent expressions

Sunday, 13 October 2019 10:20 AM

By the end of the lesson I would hope that you have an understanding of the concepts below:

- Know what it means to be equivalent
- Know how to identify equivalent expressions
- Use a table of values to prove if expressions are equivalent

RECAP

In previous videos we have looked at the language used in Algebra.
We have met the following words:

- Term
- Coefficient
- Pronumeral
- Variable
- Constant
- Evaluate
- Substitute
- Expression, and
- Equation

We are now going to look at a new word and that is **equivalent**.

Let's look it up!

equivalent

/ɪˈkwɪv(ə)l(ə)nt/

adjective

adjective: **equivalent**

equal in value, amount, function, meaning, etc.
"one unit is **equivalent to** one glass of wine"

Similar: equal | identical | similar | parallel | analogous | comparable

- having the same or a similar effect as.
  "some regulations are equivalent to censorship"
- MATHEMATICS
  belonging to the same equivalence class.

noun

noun: **equivalent**; plural noun: **equivalents**; noun: **equivalent weight**; plural noun: **equivalent weights**

1. a person or thing that is equal to or corresponds with another in value, amount, function, meaning, etc.
   "the French equivalent of the Bank of England"

   Similar: counterpart | parallel | alternative | match | complement
2. CHEMISTRY
   the mass of a particular substance that can combine with or displace one gram of hydrogen or eight grams of oxygen, used in expressing combining powers, especially of elements.

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Awesome ... so it means "the same" .... **EXACTLY** the same.

MAFFS IS A BIG FAT TRICK

One of the simplest ways we can confuse you ... is to write things in a different order.

For example, $3 + 4$ and $4 + 3$

$7 = 7$

Another example: $1 \times 2 \times 3$ and $2 \times 3 \times 1$

$1 \times 2 \times 3 = 6$

$2 \times 3 \times 1 = 6$

$1 \times 3 \times 2 = 6$

$2 \times 1 \times 3 = 6$

The problem with above is ... if you don't know about the ordering of Maths, then you will get tricked.

Remember: Letters stand in the place of numbers

This is so important in Algebra!

Are the following the same?

$a + b$ and $b + a$? ✓

$2a + h$ and $2h + a$ ✗

What about $a + a + h$ and $2a + h$ and $h + 2a$

$2a + h$

When I went to the Greengrocers ...

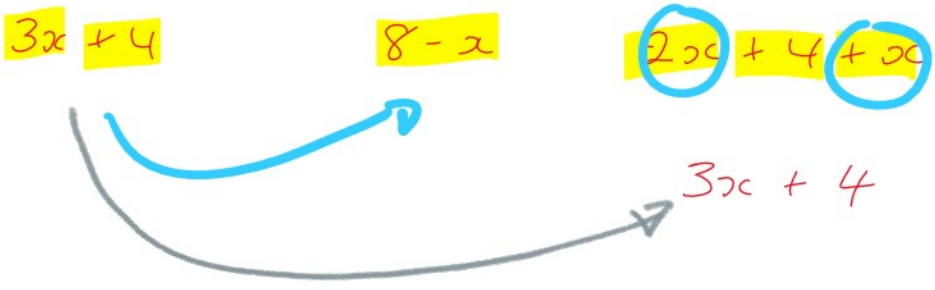
I LOVE THIS GAME!

The point of the game is to try and think of the letters as standing for something in real life.
Something you can buy.
Something in a supermarket.
This might help you a LOT more than you think.

Let's look at some examples:

Example 1: Provided from the Cambridge Essentials Textbook series

Which two of these expressions are equivalent: $3x + 4$, $8 - x$, $2x + 4 + x$?



If we use the idea of things from a supermarket ... remembering that numbers/constants are just something without a letter ... but which can be grouper ... then we might be able to answer all the questions with ease.

There is another way to checking which are the same!

Use a table

Sometimes it might be quicker to draw a quick table and **substitute** some values for the pronumeral, and see which are the same.

	$x =$ 1	2	3	4
$3x + 4$	7	10	13	16
$8 - x$	7	6	5	4
$2x + 4 + x$	7	10	13	14