### Substitution

Standard

MS-A1 Formulae and Equations updated: 2021-01-19

#### Learning Outcome

### Topic:

Substitution

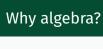
# Syllabus:

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 review substitution of numerical values into linear and non-linear algebraic expressions and equations

## Activities/Tasks:

· Cambridge Ex 3A Q1-17



**Algebra** is used Mathematicians to communicate mathematical ideas in a convenient way. **Variables** (letters and symbols) are used to represent unknown quantities whose value can change depending on the situation.

### Expressions

We can think of expressions as number crunching machines. Numbers are put in and then a related number is produced.

For example the expression  $a^2+1$  starts with an input a, squares it and adds 1.

If the number -5 is fed into the machine, the machine **substitutes** the number 5 in place of *a* and then **evaluates** the result:

$$a^{2} + 1$$

$$= (-5)^{2} + 1$$

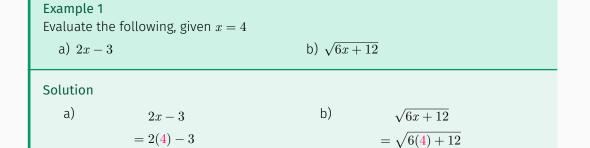
$$= 25 + 1$$

$$= 26$$

### Substituting

Important Note

To avoid making mistakes it is good practice to **always** substitue into brackets.



 $=\sqrt{24+12}$ 

 $= \sqrt{36}$ = 6

= 8 - 3

=5

Example 2 Evaluate 
$$a^2-5b+c$$
 given  $a=3,\,b=-3,\,c=7$  Solution 
$$a^2-5b+c$$
  $=(3)^2-5(-3)+(7)$ 

=9+15+7

= 31

### Today's work

• Cambridge Ex 3A Q1-17