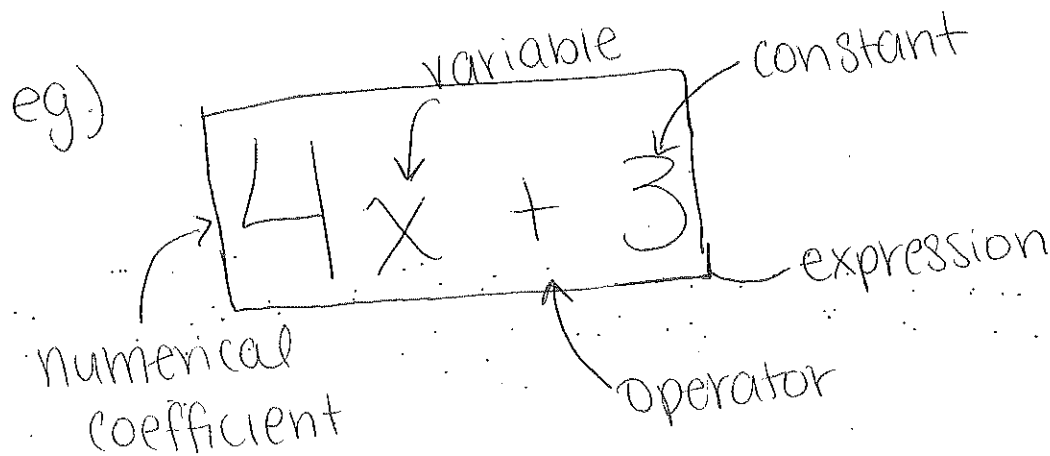


## Grade 8 Math: Patterns and Relations

### Variables and Expressions

- An expression is a mathematical phrase made up of numbers and variables, connected by operators.
  - o Variable: A letter or symbol used to represent a number
  - o Constant: A number that does not change
  - o Numerical co-efficient: A number that multiplies a variable
  - o Operators Symbols such as:
    - + adding
    - Subtracting
    - x multiplying
    - ÷ dividing

these will tell you what operation to perform



## Practice

Write the words as an *algebraic expression*.

1. Six times the length plus 2 times the width

$$6l + 2w$$

2. The cost plus eight

$$1c + 8$$

3. Two times the height minus 3

$$2h - 3$$

Write each expression in *words*.

1.  $4x + 3$

four times a number plus three

2.  $10 - 2x$

ten minus two times a number

3.  $6x + y - 4$  a number another number

six times a number plus another number minus four.

## Substitution

Replacing a variable (eg.  $x$  or  $y$ ) with a number

eg1)  $7a + 3$  where  $a = 5$

Replace letter with number

Evaluate using BEDMAS

$$7(5) + 3$$
$$35 + 3$$
$$\boxed{38}$$

eg2)  $2x + 4y$  where  $x = -2$   
 $y = 3$

$$2(-2) + 4(3)$$
$$-4 + 12$$
$$\boxed{8}$$