Learning Objectives:

Be able to substitute values into expressions

Understand what equivalence is

Understand how the commutative and associative laws are used

Show that expressions are not equivalent using substitution

a b c d e f

a = 1 b = 2 c = 3

eg. $3a = 3 \times a$

$= 3 \times 1$

$= 3$

EVALUATE

Expression

eg 2. $4ab = 4 \times a \times b$

$= 4 \times 1 \times 2$

$= 4 \times 2$

$= 8$

eg 3 $3a + 4b$

question

$= 3 \times a + 4 \times b$

$= 3 \times 1 + 4 \times 2$

$= 3 + 8$

$= 11$

B
I
D
M
A
S

eg $5x^2 + 2y + x$

$x = 3 \quad y = 6$

$= 5 \times x \times x + 2 \times y + x$

$= 5 \times 3 \times 3 + 2 \times 6 + 3$

$x^2 = x \times x$

$= 45 + 12 + 3$

$= 57 + 3$

$= 60$

Equivalence

$2 + 3 = 3 + 2$ ✓

eg Are $x - 3$ and $3 - x$ Equivalent

$2 - 3 \neq 3 - 2$ ×

$(-1) \neq (1)$

$x = 1$

$x - 3 = 1 - 3$

$= -2$

$3 - x = 3 - 1$

$= 2$

eg2. $a + b = b + 2a - a$

$a = 1$ $\quad 1 + 2 = 2 + 2 \times 1 - 1$

$b = 2$

$1 + 2 = 2 + 2 - 1$

$3 = 3$ ✓

Interesting! $\quad b + 2a - a$

$a + b = b + a$ ← collect like terms