

M9

Substitution

3.3

Recall:

$$2a = 2 \times a = (2)(a)$$

- This means that the operation between the coefficient (the number) and the variable is always **multiplication**.

1. Evaluate each expression:

L1	$x + 5$ when $x = 10$ $10 + 5$ $\boxed{15}$
L2	$2a + 6$ when $a = -5$ $2(-5) + 6$ $-10 + 6$ $\boxed{-4}$
L3	$-x + 15 + 3x$ when $x = -4$ $-(-4) + 15 + 3(-4)$ $4 + 15 + (-12)$ $\boxed{7}$
L4	$(y^2 + 12) \div 7 + 5y$ when $y = -3$ $(-3)^2 + 12 \div 7 + 5(-3)$ $(9 + 12) \div 7 + 5(-3)$ $21 \div 7 + 5(-3)$ $3 + 5(-3)$ $3 + (-15) \rightarrow \boxed{-12}$

2. Evaluate each expression:

L1	$x + 5y$ when $x = 4$ and $y = 2$ $4 + 5(2)$ $4 + 10$ 14
L2	$2a - 6b + 1$ when $a = -1$ and $b = 7$ $2(-1) - 6(7) + 1$ $-2 - 6(7) + 1$ $-2 - 42 + 1$ $-44 + 1$ -43
L3	$3x + 15 + 3xy$ when $x = 4$ and $y = -2$ $3(4) + 15 + 3(4)(-2)$ $12 + 15 + 3(4)(-2)$ $12 + 15 + 12(-2)$ $12 + 15 + (-24)$ $27 + (-24)$ 3

L4

$$\frac{(y^3+20)\div 7+5z}{4y} \quad \text{when } y = -3 \text{ and } z = 11$$

$$\frac{((-3)^3 + 20) \div 7 + 5(11)}{4(-3)}$$

$$\frac{(-27 + 20) \div 7 + 5(11)}{-12}$$

$$\frac{-7 \div 7 + 5(11)}{-12}$$

$$\frac{-1 + 5(11)}{-12}$$

$$\frac{-1 + 55}{-12}$$

$$\frac{54}{-12} = -4.5 \text{ or } -\frac{9}{2}$$

Equations

$$\boxed{\text{Left Side}} = \boxed{\text{Right Side}}$$

$$\text{LS} = \text{RS}$$

Coefficient → $4x + 5 = 7$

Multiplication

Variable

constants