

Level 4: Algebra 1

1) Simplify expressions, for example:-

$$4x + 3y + 5x + 4y = 9x + 7y \quad \text{Collect terms with the same letter together.}$$

$$5r + 6 + 7r + 2 = 12r + 8 \quad \text{Collect letter and number-only terms separately.}$$

$$3x^2 + 4x + 5x^2 + 6x = 8x^2 + 10x \quad \text{Collect } x \text{ and } x^2 \text{ terms separately.}$$

$$x + 2y + 3x - 5y = 4x - 3y \quad \text{Pay attention to the sign in front of each term e.g. } -5y$$

$$a + 4b - 5a - 7b = -4a - 3b \quad \text{An expression may start with a negative term.}$$

$$5c + 6d - 3c + 6d - 2c = 12d \quad \text{No need to write "0c".}$$

$$4e + 5f - 6g + 7f \quad \text{Cannot be simplified: all the letters are different.}$$

2) Evaluate expressions, for example: -

If $a = 5$ and $b = 2$,

$3a + 6b$	$a^3 - ab$	$\frac{a^2 + 3}{a + b}$	$3a^2 - 7ab$
$= 3 \times 5 + 6 \times 2$	$= 5 \times 5 \times 5 - 5 \times 2$	$= \frac{5 \times 5 + 3}{5 + 2}$	$= 3 \times 25 - 7 \times 10$
$= 15 + 12$	$= 125 - 10$	$= \frac{28}{7}$	$= 75 - 70$
$= 27$	$= 115$	$= 4$	$= 5$

Pupils have covered negative numbers in S1 so examples could include negative numbers e.g. $x = -3$