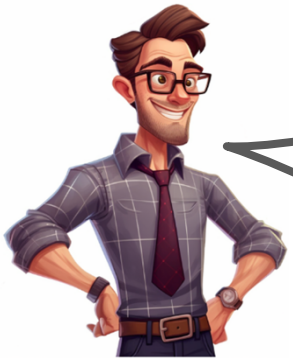
SUPER 12s



SUPER 12s CAN BE USED AS AN INDIVIDUALISED MASTERY LEARNING PROGRAM.

2 ALGEBRA
2.9 SUBSTITUTION
2.9 LEVEL 6

NAME : _____

Skill description: Evaluating expressions that involve brackets and multiple terms by substituting positive and negative values for variables.

Essential Revision

1. Write the algebraic term.

9 divided by z

2. Evaluate.

$8e$ if $e = 7$

3. Evaluate.

$-8e$ if $e = 8$

4. Evaluate. $3x - 5t - 4$

if $x = 11$ and $t = 4$

5. Evaluate. $3x - 2t - 4$

if $x = 11$ and $t = -4$

6. Evaluate.

$(2x - 1)(3x - 2)$ if $x = 2$

7. Write the algebraic term.

y multiplied by 6

8. Evaluate.

$\frac{15}{t}$ if $t = 3$

9. Evaluate.

$\frac{21}{-t}$ if $t = -3$

10. Evaluate. $8y - 2p$

if $y = 4$ and $p = 3$

11. Evaluate. $4y - 2p$

if $y = -4$ and $p = 3$

12. Evaluate.

$10(x - 2)$ if $x = 3$

Solutions can be found at the end of the booklet.

score $\frac{\quad}{12}$

STRATEGIES TO SOLVE THE PROBLEMS

Substitution involving multiple terms and brackets

In the previous levels, we examined substituting values into an expression with multiple variables; now, we examine substituting negative values into expressions with brackets.

Example 1

Evaluate.

$$4(x+2) \text{ if } x=-4$$

Step 1

Substitute the value $x=-4$.

$$4(x+2)$$

$$4(-4+2)$$

$$4(-2)$$

$$-8$$

Example 2

Evaluate.

$$2(x-3)(x+1) \text{ if } x=-5$$

Step 1

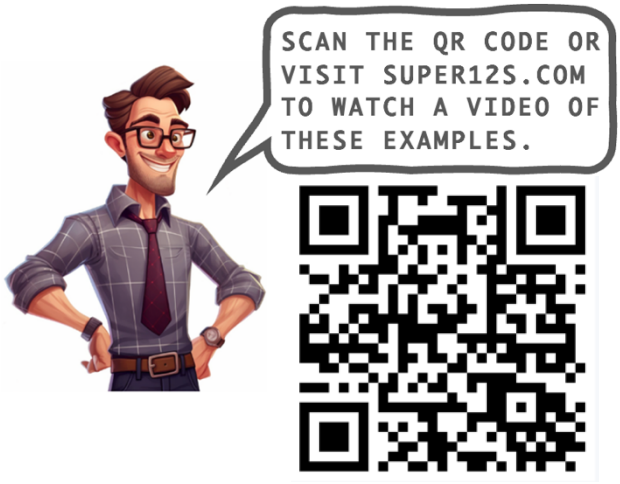
Substitute the value $x=-5$.

$$2(x-3)(x+1)$$

$$2(-5-3)(-5+1)$$

$$2(-8)(-4)$$

$$64$$



Example 3

Evaluate.

$$(2x-1)(3x+2) \text{ if } x=-2$$

Step 1

Substitute the value $x=-2$.

$$(2x-1)(3x+2)$$

$$(2(-2)-1)(3(-2)+2)$$

$$(-4-1)(-6+2)$$

$$(-5)(-4)$$

$$20$$

QUESTIONS

Evaluate and simplify your answer.

1. $3(x+3)$ if $x=-2$

2. $2(x-4)(x+2)$ if $x=-5$

3. $(2x-1)(2x+2)$ if $x=-3$

4. $4(x+2)$ if $x=-5$

5. $2(x+3)(x+1)$ if $x=-1$

6. $(x-1)(5x+2)$ if $x=-3$

7.

$2(x+4)$ if $x=-2$

8.

$4(x-1)(x+1)$ if $x=-4$

9.

$(2x-2)(3x+2)$ if $x=-3$

10.

$8(x-2)$ if $x=-3$

11.

$3(2x-3)(x+1)$ if $x=-3$

12.

$(3x-1)(3x-2)$ if $x=-2$

SOLUTIONS CAN BE FOUND AT THE END OF THE BOOKLET.

score $\frac{\quad}{12}$

MASTERY TEST

Teacher's signature

I'VE COMPLETED

_____

LEVELS THIS YEAR

Solutions to Essential Revision

1. $\frac{9}{z}$	2. 56
3. -64	4. 9
5. 37	6. 12
7. $6y$	8. 5
9. 7	10. 26
11. -22	12. 10

Solutions to Questions

1. 3	2. 54
3. 28	4. -12
5. 0	6. 52
7. 4	8. 60
9. 56	10. -40
11. 54	12. 56