

SUPER 12s



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

2 ALGEBRA
2.9 SUBSTITUTION
2.9 LEVEL 5

NAME: _____

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

Essential Revision

1. Write the algebraic term.

23 multiplied by y

2. Evaluate.

$$\frac{21}{y} \text{ if } y = 7$$

3. Evaluate.

$$-11n \text{ if } n = -2$$

4. Evaluate. $5x - 2p$

$$\text{if } x = 4 \text{ and } p = 3$$

5. Evaluate. $3x - 2p$

$$\text{if } x = -4 \text{ and } p = 3$$

6. Write the algebraic term.

25 multiplied by x

7. Evaluate.

$$8m \text{ if } m = 3$$

8. Evaluate.

$$\frac{v}{-8} \text{ if } v = 16$$

9. Evaluate. $10x - 2t - 4$

$$\text{if } x = 4 \text{ and } t = 2$$

10. Evaluate. $9x - 2t - 4$

$$\text{if } x = -4 \text{ and } t = 2$$

11. Write the algebraic term.

$$9 \text{ divided by } z$$

12. Evaluate.

$$\frac{y}{9} \text{ if } y = 3$$

Solutions can be found at the end of the booklet.

score
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 look at including expressions with brackets.

Example 1

Evaluate.

$$5(x + 2) \text{ if } x = 4$$

Step 1

Substitute the value $x = 4$.

$$5(x + 2)$$



$$5(4 + 2)$$



$$5(6)$$



$$30$$

Example 2

Evaluate.

$$4(x - 3)(x + 1) \text{ if } x = 5$$

Step 1

Substitute the value $x = 5$.

$$4(x - 3)(x + 1)$$



$$4(5 - 3)(5 + 1)$$



$$4(2)(6)$$



$$48$$



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THESE EXAMPLES.



Example 3

Evaluate.

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

Step 1

Substitute the value $x = 2$.

$$\begin{array}{c} (2x - 1)(3x + 2) \\ \downarrow \quad \downarrow \\ (2(2) - 1)(3(2) + 2) \\ \downarrow \quad \downarrow \\ (4 - 1)(6 + 2) \\ \downarrow \quad \downarrow \\ (3)(8) \\ \downarrow \\ 24 \end{array}$$

QUESTIONS

Evaluate and simplify your answer.

1.

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

2.

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

3.

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

4.

$$7(x + 2) \text{ if } x = 5$$

5.

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

6.

$$(x - 1)(7x + 2) \text{ if } x = 3$$

7.

$$5(x + 4) \text{ if } x = 2$$

8.

$$5(x - 1)(x + 1) \text{ if } x = 4$$

9.

$$(4x - 2)(3x + 2) \text{ if } x = 3$$

10.

$$10(x - 2) \text{ if } x = 3$$

11.

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

12.

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



SOLUTIONS CAN BE FOUND AT
THE END OF THE BOOKLET.

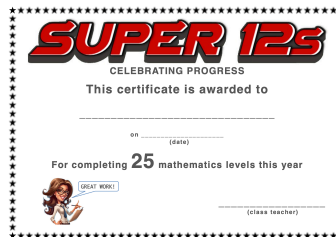
score
12

MASTERY TEST

Teacher's signature

I'VE COMPLETED

LEVELS THIS YEAR



Solutions to Essential Revision

1. $23y$

2. 3

3. 22

4. 14

5. -18

6. $25x$

7. 24

8. -2

9. 32

10. -44

11. $\frac{9}{z}$

12. $\frac{1}{3}$

Solutions to Questions

1. 12

2. 48

3. 64

4. 49

5. 24

6. 46

7. 30

8. 75

9. 110

10. 10

11. 24

12. 12