

SUPER 12s



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

2 ALGEBRA
2.9 SUBSTITUTION
2.9 LEVEL 4

NAME : _____

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

Essential Revision

1. Write the algebraic term.

r multiplied by 12

2. Evaluate.

$\frac{x}{4}$ if $x = 16$

3. Evaluate.

$8m$ if $m = -2$

4. Evaluate. $2x + 4y + 1$

if $x = 2$ and $y = 3$

5. Write the algebraic term.

11 divided by t

6. Evaluate.

$5a$ if $a = 12$

7. Evaluate.

$$\frac{-x}{2} \text{ if } x = 16$$

8. Evaluate. $3x + 5y - 7$

$$\text{if } y = 5 \text{ and } x = 3$$

9. Write the algebraic term.

y multiplied by 6

10. Evaluate.

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

11. Evaluate.

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

12. Evaluate. $8y - 2p$

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

Solutions can be found at the end of the booklet.

score
12

STRATEGIES TO SOLVE THE PROBLEMS

Substitution involving multiple terms

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

Example 1

Evaluate.

$$5x + 2p$$

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

Step 1

Substitute the values $x = -4$ and $p = 3$.

$$5x + 2p$$



$$5(-4) + 2(3)$$



$$-20 + 6$$



$$-14$$

Example 2

Evaluate.

$$4x - 3k + 8$$

if $x = 5$ and $k = -5$

Step 1

Substitute the values $x = 5$ and $k = -5$.

$$4x - 3k + 8$$



$$4(5) - 3(-5) + 8$$



$$20 + 15 + 8$$



$$43$$



QUESTIONS

Evaluate and simplify your answer.

1.

$$5x + 2p$$

$$\text{if } x = 2 \text{ and } p = -3$$

2.

$$7y - 2j$$

$$\text{if } y = 4 \text{ and } j = -2$$

3.

$$2x + 8y + 1$$

$$\text{if } x = -2 \text{ and } y = -3$$

4.

$$3x - 2p$$

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

5.

$$9x - 2t - 4$$

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

6.

$$8g + 2r$$

$$\text{if } r = -4 \text{ and } g = -3$$

7.

$$5y - 3b$$

if $b = 4$ and $y = -2$

8.

$$4x + 5y - 7$$

if $y = 5$ and $x = -3$

9.

$$10x - 3p$$

if $p = -20$ and $x = 3$

10.

$$x - 4t + 3$$

if $t = -1$ and $x = -20$

11.

$$4y - 2p$$

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

12.

$$3x - 2t - 4$$

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



SOLUTIONS CAN BE FOUND AT
THE END OF THE BOOKLET.

score
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MASTERY TEST

Teacher's signature

I'VE COMPLETED

LEVELS THIS YEAR



Solutions to Essential Revision

1. $12r$

2. 4

3. -16

4. 17

5. $\frac{11}{t}$

6. 60

7. -8

8. 27

9. $6y$

10. 5

11. 7

12. 26

Solutions to Questions

1. 4

2. 32

3. -27

4. -18

5. -44

6. -32

7. -22

8. 6

9. 90

10. -13

11. -22

12. 37