

# SUPER 12s



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

2 ALGEBRA  
2.4 MULTIPLICATION OF TERMS  
2.4 LEVEL 1

NAME : \_\_\_\_\_

Skill description: Multiplication of algebraic terms. (Index laws)

Essential Revision: Rewrite using the correct algebraic conventions.

1.

$$a^1$$

2.

$$7 \times x$$

3.

$$c + 0$$

4.

$$x \times 5$$

5.

$$1x$$

6.

$$a \times c$$

7.

$$c \times c \times c$$

8.

$$9 \div x$$

9.

$$x^1 - 0$$

10.

$$x \times 3$$

11.

$$1c + 3$$

12.

$$e \times d$$

Solutions can be found at the end of the booklet.

**score**       
12

## STRATEGIES TO SOLVE THE PROBLEMS

The index laws state that we add the indices when multiplying similar variables. The examples below explore why this is.

**Index law**

$$a^m \times a^n = a^{m+n}$$

### Example 1

Use the expanded form to simplify.

$$a^3 \times a^4$$

### Solution

Write the variables in expanded form.

$$\begin{array}{c} a^3 \times a^4 \\ \swarrow \quad \searrow \\ \underline{a \times a \times a} \times \underline{a \times a \times a \times a} \\ \downarrow \\ a^7 \end{array}$$

We can see that the index law holds true.

$$a^3 \times a^4 = a^{3+4} = a^7$$

## Example 2

Use the index laws to simplify.

$$x^2 \times x^3$$

## Solution

The index laws state that if the same variables are multiplied, you add their indices.

$$x^2 \times x^3$$



$$x^{2+3}$$



$$x^5$$



SCAN THE QR CODE OR  
VISIT SUPER12S.COM  
TO WATCH A VIDEO OF  
THESE EXAMPLES.



# QUESTIONS

Simplify.

1.

$$x \times x^3$$

2.

$$a^2 \times a^6$$

3.

$$y^8 \times y^3$$

4.

$$x^2 \times x^5$$

5.

$$a^3 \times a^3$$

6.

$$y^2 \times y^{11}$$

7.

$$x^4 \times x^3$$

8.

$$a^3 \times a^7$$

9.

$$y^7 \times y$$

10.

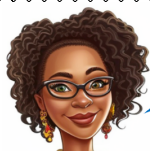
$$x^3 \times x^3 \times x$$

11.

$$a^2 \times a^6 \times a^3$$

12.

$$y^6 \times y \times y^5$$



SOLUTIONS CAN BE FOUND AT  
THE END OF THE BOOKLET.

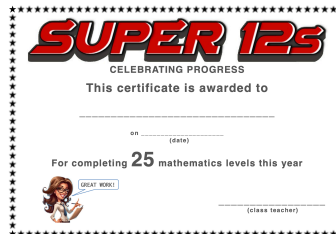
**score**       
**12**

# MASTERY TEST

Teacher's signature

I'VE COMPLETED

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LEVELS THIS YEAR



## Solutions to Essential Revision

1.  $a$

2.  $7x$

3.  $c$

4.  $5x$

5.  $x$

6.  $ac$

7.  $c^3$

8.  $\frac{9}{x}$

9.  $x$

10.  $3x$

11.  $c + 3$

12.  $de$

## Solutions to Questions

1.  $x^4$

2.  $a^8$

3.  $y^{11}$

4.  $x^7$

5.  $a^6$

6.  $y^{13}$

7.  $x^7$

8.  $a^{10}$

9.  $y^8$

10.  $x^7$

11.  $a^{11}$

12.  $y^{12}$