# SUPER 12s

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

2 ALGEBRA
2.7 FACTORISING
2.7 LEVEL 6

NAME : _____

**Skill description:** Factorising binomial expressions that contain a common numeric factor and multiple variables.

**Essential Revision**

1. Use the distributive law to expand the bracket.

$$4(y-3)$$

2. Factorise.

$$10x+15$$

3. Factorise.

$$-21a+30$$

4. Factorise.

$$4d^2+5d$$

5. Factorise.

$$3x^2-9x$$

6. Use the distributive law to expand the bracket.

$$4(a+11)$$

7. Factorise.

$18b + 45$

8. Factorise.

$-10x + 90$

9. Factorise.

$7x^4 - 3x^2$

10. Factorise.

$10x^4 + 15x^2$

11. Use the distributive law to expand the bracket.

$5(x - 5)$

12. Factorise.

$10x + 14$

Solutions can be found at the end of the booklet.

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

# STRATEGIES TO SOLVE THE PROBLEMS

**Example 1**

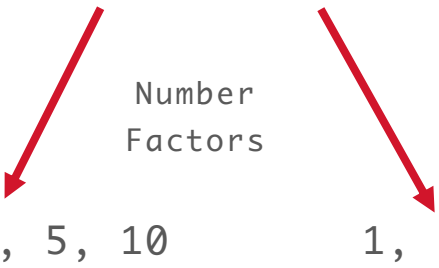
Factorise the following.

$$10x^3y - 6x^2y^3$$

**Step 1**

Look for common factors in the numbers and variables. It often helps to list the factors of the numbers in each term.

$$10x^3y - 6x^2y^3$$




1, 2, 5, 10 1, 2, 3, 6

The variable $x$ and $y$ are also common to both terms.

**Step 2**

Choose the **highest common factor** for the number and the **highest common order** for the variables and place them outside the bracket.

Highest common factor and order = $2x^2y$

$$10x^3y - 6x^2y^3$$

$$2x^2y(\qquad)$$

Step 3

To determine the terms that go inside the bracket divide each of the original terms by the factor.

$$10x^3y - 6x^2y^3$$

$$\div 2x^2y$$

$$2x^2y(5x - 3y^2)$$

## QUESTIONS

Factorise.

1. $6x^3y^2 + 9x^2y$

2. $20ab^5 - 8a^2b^3$

3. $5cd^4 + 45c^3d$

4. $14x^5y^2 - 35x^2y^3$

5. $16a^2b^3 + 8a^3b^3$

6. $-21c^2d^2 - 6cd$

7.

$8x^2yz^2 + 12x^2y^3z$

8.

$6a^3b^2c^3 - 3abc^5$

9.

$36f^2g^3h^2 - 8f^3g^2h$

10.

$6x^2yz^6 + 15xyz^7$

11.

$50a^4b^2c - 10a^3bc^2$

12.

$33x^3y^2z + 22x^2y$

SOLUTIONS CAN BE FOUND AT THE END OF THE BOOKLET.

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

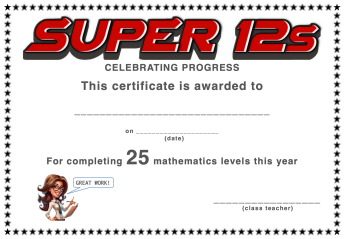
# MASTERY TEST

Teacher's signature

I'VE COMPLETED

_____

LEVELS THIS YEAR





## Solutions to Essential Revision

| | |
|---|---|
| 1. $4y - 12$ | 2. $5(2x + 3)$ |
| 3. $-3(7a - 10)$ | 4. $d(4d + 5)$ |
| 5. $3x(x - 3)$ | 6. $4a + 44$ |
| 7. $9(2b + 5)$ | 8. $-10(x - 9)$ |
| 9. $x^2(7x^2 - 3)$ | 10. $5x^2(2x^2 + 3)$ |
| 11. $5x - 25$ | 12. $2(5x + 7)$ |

## Solutions to Questions

| | |
|---|---|
| 1. $3x^2y(2xy + 3)$ | 2. $4ab^3(5b^2 - 2a)$ |
| 3. $5cd(d^3 + 9c^2)$ | 4. $7x^2y^2(2x^3 - 5y)$ |
| 5. $8a^2b^3(2 + a)$ | 6. $-3cd(7cd + 2)$ |
| 7. $4x^2yz(2z + 3y^2)$ | 8. $3abc^3(2a^2b - c^2)$ |
| 9. $4f^2g^2h(9gh - 2f)$ | 10. $3xyz^6(2x + 5z)$ |
| 11. $10a^3bc(5ab - c)$ | 12. $11x^2y(3xyz + 2)$ |