SUPER 12s

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2 ALGEBRA
2.7 FACTORISING
2.7 LEVEL 4

NAME:_____

Skill description: Factorising binomial expressions that contain a common variable.

Essential Revision

1. Use the distributive law to expand the bracket.
$$2(d - p)$$

2. Factorise.
$$12x - 60$$

3. Factorise.
$$-3x + 21$$

4. Use the distributive law to expand the bracket.
$$a(b + d)$$

5. Factorise.
$$21a + 24$$

6. Factorise.
$$-10x - 25$$

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7. Use the distributive law to expand the bracket.
$$a(c - 3)$$

8. Factorise.
$$10x + 110$$

9. Factorise.
$$-18b - 45$$

10. Use the distributive law to expand the bracket.
$$p(x + 12)$$

11. Factorise.
$$18d - 60$$

12. Factorise.
$$-10x - 18$$

Solutions can be found at the end of the booklet.

score $\frac{}{12}$

STRATEGIES TO SOLVE THE PROBLEMS

Example 1

Factorise.

$$5x^2 + 2x$$

Step 1

Look for common factors in the numbers and variables.

$$5x^2 + 2x$$

There are no common numbers; however, the variable x is common to both terms.

Step 2

Choose the **highest common factor** and place that outside the bracket.

Highest common factor = x

$$5x^2 + 2x$$

$$x(\qquad)$$

Step 3

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

$$5x^2 + 2x$$

$$\div x$$

$$x(5x + 2)$$

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Example 2

Factorise the following:

$$3a^6 - 5a^4$$

Step 1

Look for common factors in the numbers or variables.

$$3a^6 - 5a^4$$

There are no common numbers; however, the variable a is common to both terms.

Step 2

Choose the **highest common factor** and place that outside the bracket.

Highest common factor = a^4

$$3a^6 - 5a^4$$

$$a^4(\qquad)$$

Step 3

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

$$3a^6 - 5a^4$$

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$$\div\ a^4$$

$$a^4(3a^2 - 5)$$

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1.

$$5x^2 - 3x$$

2.

$$2y^3 + 5y^2$$

3.

$$a^4 - 3a$$

4.

$$4d^2 + 5d$$

5.

$$7x^4 - 3x^2$$

6.

$$2y^2 + 9y$$

7.

$$3a^6 + 11a^4$$
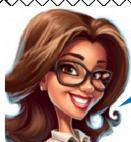
8.

$$13d^3 - 8d$$

9.

$$5x^5 + 2x^4$$

10.

$$2y^4 - 3y$$

11.

$$7a^7 + 6a^3$$

12.

$$12c^8 + 7c^5$$

score $\overline{12}$

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M A S T E R Y   T E S T

I'VE COMPLETED

_____

LEVELS THIS YEAR

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This certificate is awarded to
....
on .... (date)
For completing **25** mathematics levels this year
GREAT WORK!
.... (class teacher)

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For completing **50** mathematics levels this year
GREAT WORK!
.... (class teacher)
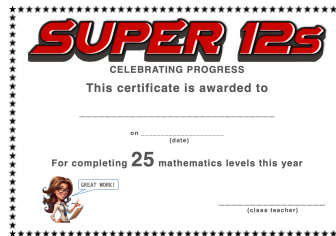
Solutions to Essential Revision

1. $2d - 2p$	2. $12(x - 5)$
3. $-3(x - 7)$	4. $ab + ad$
5. $3(7a + 8)$	6. $-5(2x + 5)$
7. $ac - 3a$	8. $10(x + 11)$
9. $-9(2b + 5)$	10. $px + 12p$
11. $6(3d - 10)$	12. $-2(5x + 9)$

Solutions to Questions

1. $x(5x - 3)$	2. $y^2(2y + 5)$
3. $a(a^3 - 3)$	4. $d(4d + 5)$
5. $x^2(7x^2 - 3)$	6. $y(2y + 9)$
7. $a^4(3a^2 + 11)$	8. $d(13d^2 - 8)$
9. $x^4(5x + 2)$	10. $y(2y^3 - 3)$
11. $a^3(7a^4 + 6)$	12. $c^5(12c^3 + 7)$

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