SUPER 12s

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

2 ALGEBRA
2.10 SOLVING EQUATIONS
2.10 LEVEL 6

NAME : _____

Skill description: Solving equations with multiple terms.

Essential Revision

1. $11 + 7 =$

2. Solve for the unknown.

$\blacksquare + 7 = 31$

3. Solve the equation.

$z + 5 = 26$

4. Solve the equation.

$6r = 24$

5. Solve the equation.

$\frac{p}{3} = 5$

6. Solve the equation.

$\frac{2x}{3} = 6$

7.

$$9 + 12 =$$

8. Solve for the unknown.

$$\blacksquare + 12 = 17$$

9. Solve the equation.

$$f + 13 = 22$$

10. Solve the equation.

$$3r = 18$$

11. Solve the equation.

$$\frac{p}{3} = 7$$

12. Solve the equation.

$$\frac{3y}{5} = 6$$

Solutions can be found at the end of the booklet.

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

STRATEGIES TO SOLVE THE PROBLEMS

When solving equations, the goal is to:

Isolate the desired variable (unknown) to one side of the equal sign.

We will see over the next few levels that we follow the order:

- **First:** isolate the term that contains the desired variable (unknown).
- **Second:** isolate the desired variable (unknown).

Strategy 1 – Apply the inverse operation to both sides.

For any constants on the same side of the equal sign as the desired variable, apply the inverse operation (of that constant) to both sides of the equation.

Example 1

Solve the equation.

$$-2x + 7 = -9$$

This example is a two-step process as we have two numbers (-2 and 7) mathematically linked to the variable. We must first isolate the term containing the variable x.

Step 1

The number 7 is mathematically linked to the x-term by addition. Apply the inverse operation $(-)$ to both sides of the equation.

$$-2x + 7 = -9$$

$$-7 = -7$$

$$-2x = -16$$

Step 2

The number -2 is mathematically linked to the variable x by multiplication. Apply the inverse operation $(\div)$ to both sides of the equation.

$$-2x = -16$$

$$\div(-2) = \div(-2)$$

$$x = 8$$

Strategy 2 – Change the side, change the sign.

For any constants on the same side of the equal sign as the desired variable, move to the other side and apply the inverse operation.

Example 1

Solve the equation.

$$-5x + 4 = -31$$

Step 1

Take the number 4 and move it to the other side of the equation and change the sign from $+$ to $-$.

$$-5x + 4 = -31$$

$$-5x = -31 - 4$$

$$-5x = -35$$

Step 2

Take the number -5 and move it to the other side of the equation and change the sign from $\times$ to $\div$. Remember the -5 is connected to x by multiplication.

$$-5x = -35$$

$$x = \frac{-35}{-5}$$

$$x = 7$$

QUESTIONS

Solve the equations.

1.

$2x - 7 = 3$

2.

$3y - 5 = -11$

3.

$5p + 3 = 23$

4.

$2m - 3 = 7$

5.

$-3x + 7 = -20$

6.

$-4r - 3 = -11$

7.

$3y + 8 = 17$

8.

$2t - 9 = -17$

9.

$$-2h + 7 = -1$$

10.

$$7x + 2 = -40$$

11.

$$2f - 3 = 19$$

12.

$$-3g + 8 = 2$$

SOLUTIONS CAN BE FOUND AT THE END OF THE BOOKLET.

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

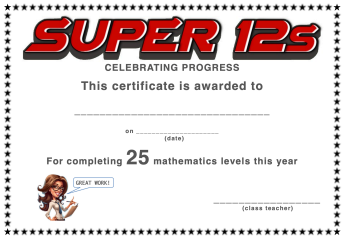
MASTERY TEST

Teacher's signature

I'VE COMPLETED

_____

LEVELS THIS YEAR



Solutions to Essential Revision

1. 18	2. $\blacksquare = 24$
3. $z = 21$	4. $r = 4$
5. $p = 15$	6. $x = 9$
7. 21	8. $\blacksquare = 5$
9. $f = 9$	10. $r = 6$
11. $p = 21$	12. $y = 10$

Solutions to Questions

1. $x = 5$	2. $y = -2$
3. $p = 4$	4. $m = 5$
5. $x = 9$	6. $r = 2$
7. $y = 3$	8. $t = -4$
9. $h = 4$	10. $x = -6$
11. $f = 11$	12. $g = 2$