

SUPER 12s



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

2 ALGEBRA

2.10 SOLVING EQUATIONS

2.10 LEVEL 1

NAME: _____

Skill description: Solving equations with the addition/subtraction of integers.

Essential Revision

1.

$$4 + 13 =$$

2.

$$5 + 3 =$$

3.

$$7 + 9 =$$

4.

$$6 + 4 =$$

5.

$$11 + 7 =$$

6.

$$9 + 12 =$$

7.

$$0 + 3 =$$

8.

$$8 + 4 =$$

9.

$$13 + 1 =$$

10.

$$7 + 5 =$$

11.

$$6 + 15 =$$

12.

$$2 + 11 =$$

Solutions can be found at the end of the booklet.

score 12

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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 for the unknown.

$$\begin{array}{c} \downarrow \quad \downarrow \quad \downarrow \\ \blacksquare + 6 = 15 \\ -6 = -6 \\ \hline \blacksquare = 9 \end{array}$$

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 2

In this example, we take the -7 and move it to the other side of the equation and change the sign from $-$ to $+$.

$$\blacksquare - 7 = 4$$


$$\blacksquare = 4 + 7$$

$$\blacksquare = 11$$



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Strategy 3 – Guess, check and improve.

Choose a value to substitute for the unknown, and calculate and compare both sides of the equation. Adjust the input value until both sides are equal.

Example 3

Solve for the unknown.

$$\blacksquare + 5 = 8$$

Choose 2 as the input value.

$$\blacksquare + 5 = 8$$



$$(2) + 5 = 8$$



$$7 = 8$$

The left-hand side equals 7 which is too low! We're trying to achieve the value of 8 so we need to increase our input value.

Choose 4 as the input value.

$$\blacksquare + 5 = 8$$



$$(4) + 5 = 8$$



$$9 = 8$$

The left-hand side equals 9, which is too high!

Choose 3 as the input value.

$$\blacksquare + 5 = 8$$



$$(3) + 5 = 8$$



$$8 = 8$$

Spot on! So, the value of $\blacksquare$ is 3.

QUESTIONS

Solve for the unknown.

1.

$$\blacksquare + 13 = 18$$

2.

$$\blacksquare + 4 = 12$$

3.

$$\blacksquare + 9 = 21$$

4.

$$\blacksquare + 4 = 7$$

5.

$$\blacksquare + 7 = 31$$

6.

$$\blacksquare + 12 = 17$$

7.

$$\blacksquare + 3 = 9$$

8.

$$\blacksquare + 4 = 70$$

9.

$$\blacksquare + 1 = 22$$

10.

$$\blacksquare + 5 = 16$$

11.

$$\blacksquare + 13 = 25$$

12.

$$\blacksquare + 11 = 19$$



SOLUTIONS CAN BE FOUND AT
THE END OF THE BOOKLET.

score 12

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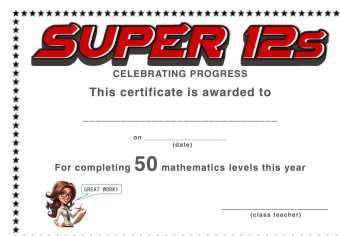
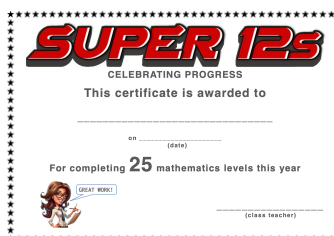
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MASTERY TEST

Teacher's signature

I'VE COMPLETED

LEVELS THIS YEAR



Solutions to Essential Revision

1. 17

3. 16

5. 18

7. 3

9. 14

11. 21

2. 8

4. 10

6. 21

8. 12

10. 12

12. 13

Solutions to Questions

1. ■ = 5

3. ■ = 12

5. ■ = 24

7. ■ = 6

9. ■ = 21

11. ■ = 12

2. ■ = 8

4. ■ = 3

6. ■ = 5

8. ■ = 66

10. ■ = 11

12. ■ = 8