SUPER 12s

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

2 ALGEBRA
2.11 SOLVING INEQUALITIES
2.11 LEVEL 6

NAME : _____

Skill description: Solving inequalities involving multiple terms with the variable appearing on both sides of the inequality.

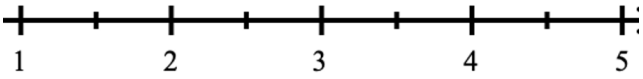
Essential Revision

1. Solve for the unknown.

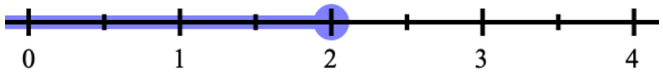
$$\blacksquare + 7 = 31$$

2. Graph the inequality on the number line.

$$x > 3$$



3. Write the inequality for the following.



4. Solve the inequality.

$$x - 8 < -4$$

5. Solve the inequality.

$$-\frac{x}{4} > 2$$

6. Solve the inequality.

$$3x - 7 \geq 11$$

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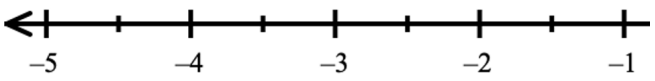
7. Solve for the unknown.

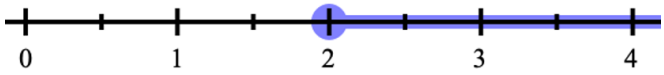
$$\blacksquare + 12 = 17$$

8. Graph the inequality on the number line.

$$x < -3$$



9. Write the inequality for the following.



10. Solve the inequality.

$$x - 2 \geq -5$$

11. Solve the inequality.

$$3 - 2x \geq -7$$

12. Solve the inequality.

$$5 - \frac{2x}{7} < 3$$

Solutions can be found at the end of the booklet.

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

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STRATEGIES TO SOLVE THE PROBLEMS

Solving inequalities and solving equations have many similarities. The critical difference is:

**If you multiply or divide by a negative,
the inequality sign reverses.**

Example 1

Solve for the unknown.

$$5 - 2x > -7x + 3$$

Step 1

To isolate all the variables to one side of the inequality, add $2x$ to both sides. As we are adding positive values, the inequality sign remains the same.

$$\begin{array}{r} 5 - 2x > -7x + 3 \\ +2x = +2x \\ \hline 5 > -5x + 3 \end{array}$$

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Step 2

To isolate the variable as the only term on the right-hand side, subtract 3 from both sides. As we are subtracting, the inequality sign remains the same.

$$5 > -5x + 3$$
$$-3 = -3$$
$$2 > -5x$$

Step 3

To isolate the variable, divide both sides by -5. The inequality sign will be reversed as we are dividing by a negative.

$$2 > -5x$$
$$\div(-5) = \div(-5)$$
$$-\frac{2}{5} < x$$

Note how the sign has reversed.

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QUESTIONS

Solve the following inequalities.

1.

$$2x - 9 \geq 8 + x$$

2.

$$7 - x < 4x + 2$$

3.

$$8 - 5x \geq 2x + 7$$

4.

$$-3x - 4 > 2x + 1$$

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5.

$7 - 5x \leq 6x - 1$

6.

$3x - 11 \geq 7 + 4x$

7.

$15 - 6x < 2x - 4$

8.

$12 - x \geq 6x + 17$

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9.

$$-7x - 1 > -4x + 1$$

10.

$$-5x + 4 \leq -x - 2$$

11.

$$4 - 3x \leq 2x - 9$$

12.

$$6x - 2 \geq -5 + x$$

SOLUTIONS CAN BE FOUND AT THE END OF THE BOOKLET.

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

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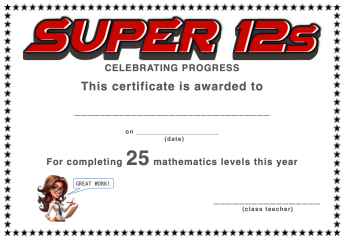
MASTERY TEST

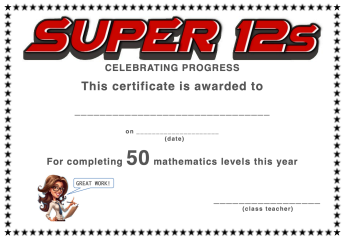
Teacher's signature

I'VE COMPLETED

_____

LEVELS THIS YEAR





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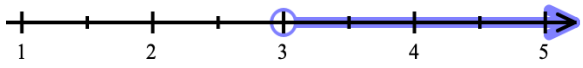
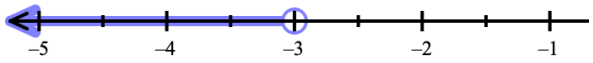
Solutions to Essential Revision

1. $\blacksquare = 24$	2. 
3. $x \leq 2$	4. $x < 4$
5. $x < -8$	6. $x \geq 6$
7. $\blacksquare = 5$	8. 
9. $x \geq 2$	10. $x \geq -3$
11. $x \leq 5$	12. $x > 7$

Solutions to Questions

1. $x \geq 17$	2. $x > 1$
3. $x \leq \frac{1}{7}$	4. $x < -1$
5. $x \geq \frac{8}{11}$	6. $x \leq -18$
7. $x > \frac{19}{8}$	8. $x \leq -\frac{5}{7}$
9. $x < -\frac{2}{3}$	10. $x \geq \frac{3}{2}$
11. $x \geq \frac{13}{5}$	12. $x \geq -\frac{3}{5}$

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