

# SUPER 12s



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

2 ALGEBRA  
2.11 SOLVING INEQUALITIES  
2.11 LEVEL 1

NAME : \_\_\_\_\_

Skill description: Graphing inequalities on a number line.

## Essential Revision

1. Solve for the unknown.

$$\blacksquare + 13 = 18$$

2. Solve for the unknown.

$$\blacksquare + 4 = 12$$

3. Solve for the unknown.

$$\blacksquare + 9 = 21$$

4. Solve for the unknown.

$$\blacksquare + 4 = 7$$

5. Solve for the unknown.

$$\blacksquare + 7 = 31$$

6. Solve for the unknown.

$$\blacksquare + 12 = 17$$

7. Solve for the unknown.

$$\blacksquare + 3 = 9$$

8. Solve for the unknown.

$$\blacksquare + 4 = 70$$

9. Solve for the unknown.

$$\blacksquare + 1 = 22$$

10. Solve for the unknown.

$$\blacksquare + 5 = 16$$

11. Solve for the unknown.

$$\blacksquare + 13 = 25$$

12. Solve for the unknown.

$$\blacksquare + 11 = 19$$

Solutions can be found at the end of the booklet.

**score**       
**12**

# STRATEGIES TO SOLVE THE PROBLEMS

## Reading inequalities

Inequalities can be read and understood the following way.

$x > 3$  Indicates  $x$  is greater than 3.

$x \geq 3$  Indicates  $x$  is equal to or greater than 3.

$x < 3$  Indicates  $x$  is less than 3.

$x \leq 3$  Indicates  $x$  is less than or equal to 3.

## Memorisation technique

Imagine an inequality as the mouth of a crocodile and know that the crocodile will always choose the larger value.

Here, 3 is larger than  $x$ .

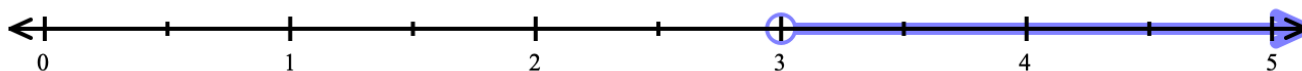
$$x < 3$$

$$x \text{  3$$

## Graphing inequalities on a number line

### Example 1

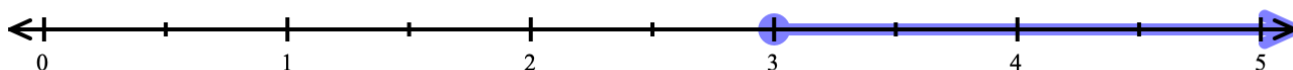
$x > 3$  Indicates  $x$  is greater than 3.



Note: There is a **hollow** circle at the point  $x = 3$ , which indicates the number 3 is **not included** in the solution, as the solution is greater than 3 (but does not include 3).

### Example 2

$x \geq 3$  Indicates  $x$  is equal to or greater than 3.



Note: There is a **solid** circle at the point  $x = 3$ , this indicates the number 3 is **included** in the solution, as the solution is equal to or greater than 3.

### Example 3

$x < 3$       Indicates  $x$  is less than 3.



Note: There is a **hollow** circle at the point  $x = 3$ , which indicates the number 3 is **not included** in the solution, as the solution is less than 3 (but does not include 3).

### Example 4

$x \leq 3$       Indicates  $x$  is less than or equal to 3.

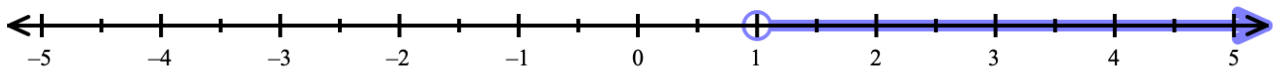


Note: There is a **solid** circle at the point  $x = 3$ , which indicates the number 3 is **included** in the solution, as the solution is equal to or less than 3.

### Example 5

Graph the following inequality on a number line.

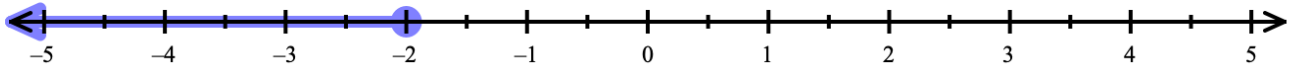
$$x > 1$$



### Example 6

Graph the following inequality on a number line.

$$x \leq -2$$



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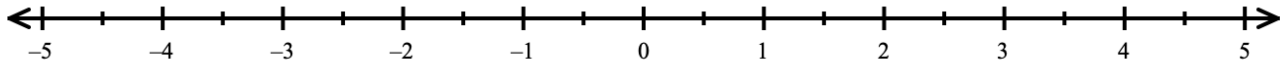


## QUESTIONS

Graph the following inequalities on the number line.

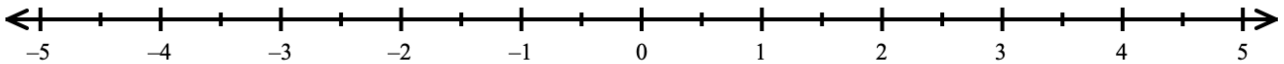
1.

$$x \geq 2$$



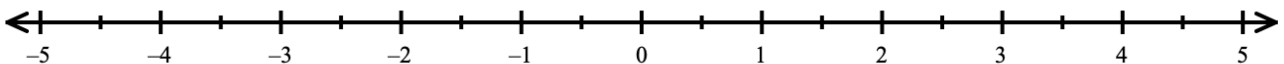
2.

$$x < 4$$



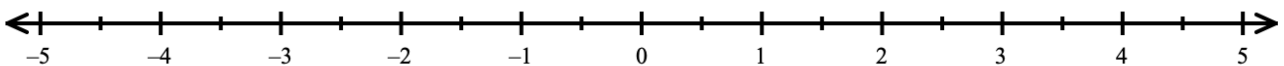
3.

$$x > -2$$



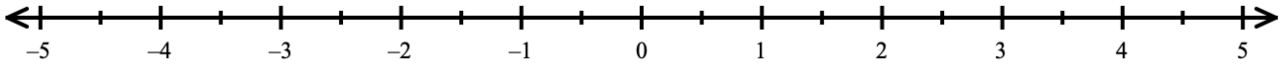
4.

$$x \leq 0$$



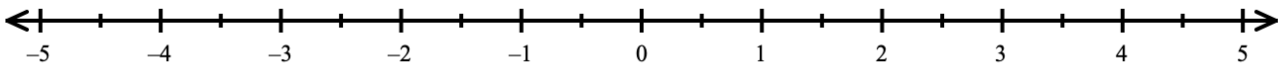
5.

$$x > 3$$



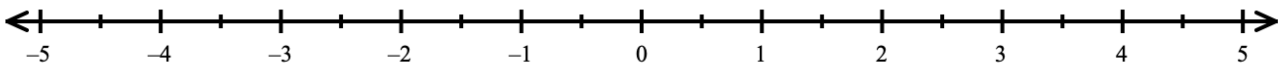
6.

$$x < -3$$



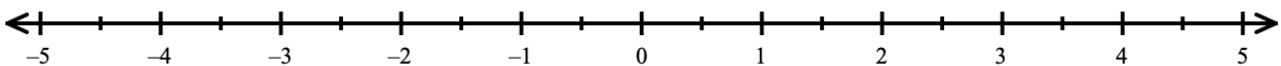
7.

$$x \geq -4$$



8.

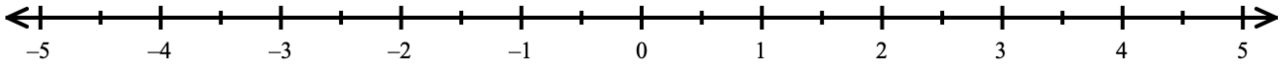
$$x \leq 2$$





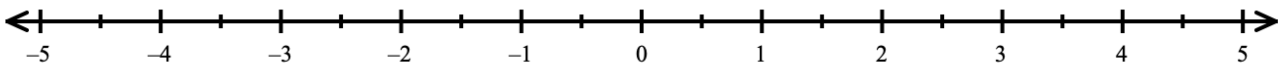
9.

$$x > -4$$



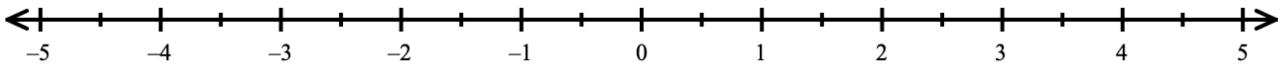
10.

$$x \geq 3$$



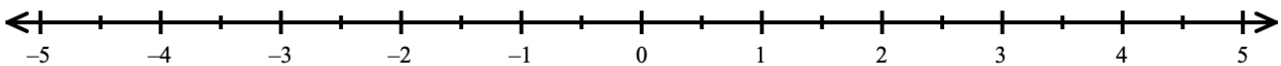
11.

$$x \geq 1$$



12.

$$x \leq -3$$



SOLUTIONS CAN BE FOUND AT  
THE END OF THE BOOKLET.

**score**       
**12**

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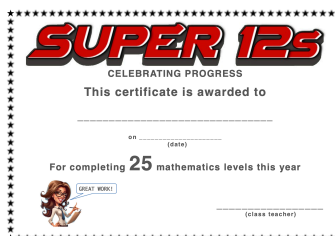
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# MASTERY TEST

Teacher's signature

I'VE COMPLETED

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LEVELS THIS YEAR



## Solutions to Essential Revision

1.      ■ = 5

3.      ■ = 12

5.      ■ = 24

7.      ■ = 6

9.      ■ = 21

11.     ■ = 12

2.      ■ = 8

4.      ■ = 3

6.      ■ = 5

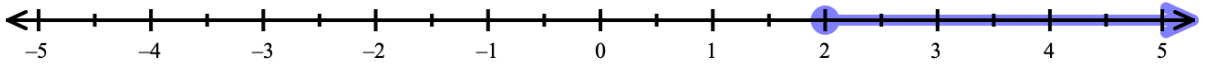
8.      ■ = 66

10.     ■ = 11

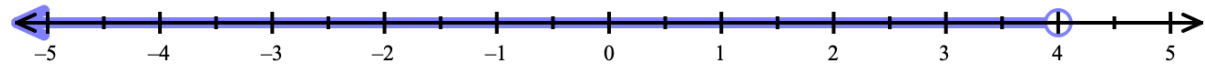
12.     ■ = 8

## Solutions to Questions

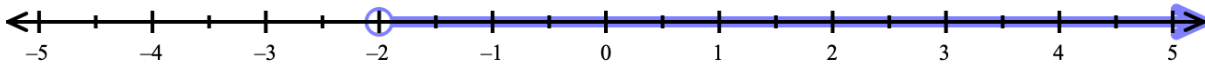
1.



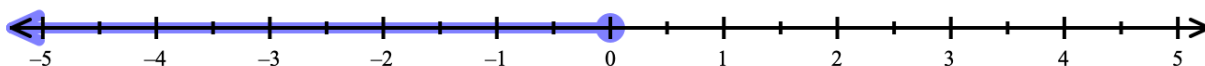
2.



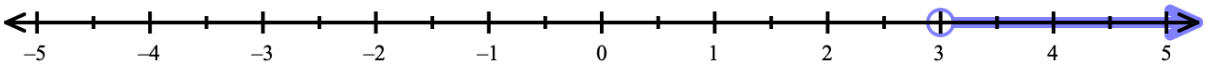
3.



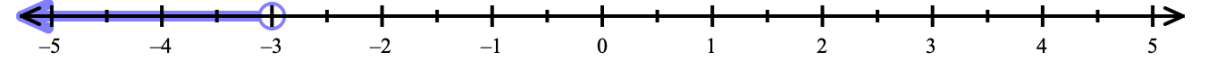
4.



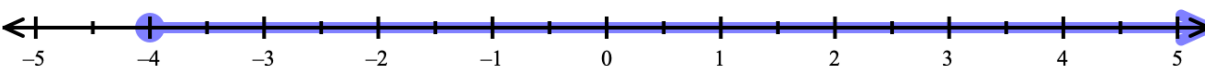
5.



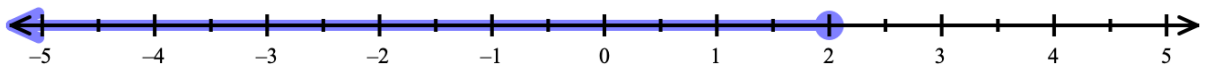
6.



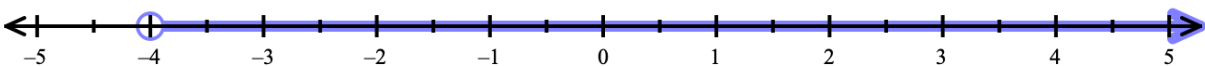
7.



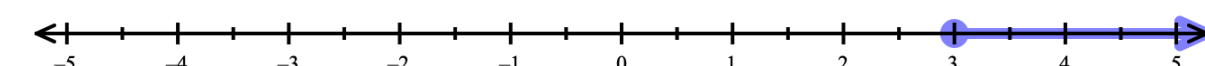
8.



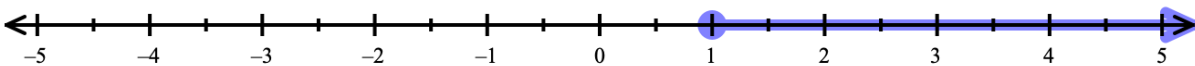
9.



10.



11.



12.

