

Grade 6 - Inequalities on the Number Line - Answer Key

Common Core 6.EE.B.5, 6.EE.B.8 · maths-pdf.fr/en/

Check each inequality here. The solutions show the substitution test, the type of circle and direction of shading, and the final inequality in bold. Number-line graphs are included for the graphing problems.

Grade 6 · Common Core State Standards: **6.EE.B.5, 6.EE.B.8**

Exercise 1 - Is it a solution? (greater than)

$6 > 4$ is true.

Yes.

Exercise 2 - Is it a solution? (at least)

$4 \geq 9$ is false because 4 is less than 9.

No.

Exercise 3 - Is it a solution? (expression)

Substitute: $8 + 2 = 10$, and $10 < 10$ is false.

No. 8 is not a solution.

Exercise 4 - Graph $x > 3$

Draw an *open* circle at 3 because 3 is not included, and shade to the right.

See the graph.



Open circle at 3, ray to the right.

Exercise 5 - Graph $x \leq 2$

Draw a *closed* circle at 2 because 2 is included, and shade to the left.

See the graph.

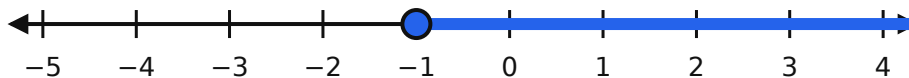


Closed circle at 2, ray to the left.

Exercise 6 - Graph with a negative

Closed circle at -1 , shade to the right.

See the graph.



Closed circle at -1 , ray to the right.

Exercise 7 - Write from a graph (open)

The circle is open at 4 and the ray goes right.

$$x > 4$$

Exercise 8 - Write from a graph (closed)

The circle is closed at -2 and the ray goes left.

$$x \leq -2$$

Exercise 9 - Less than

$$x < 7$$

Exercise 10 - At least

"At least" means 12 or more.

$$x \geq 12$$

Exercise 11 - No more than

"No more than" means 20 or less.

$$x \leq 20$$

Exercise 12 - More than

$$x > 15$$

Exercise 13 - List solutions

Any number greater than 5 works, such as 6, 7.5, and 100.

For example: 6, 7.5, 100

Exercise 14 - Solutions with decimals

Sample solutions: 2.5, 3, 10.

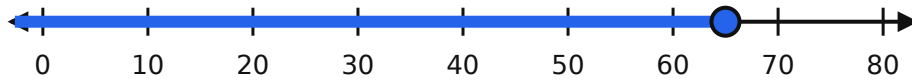
Yes, 2.5 is a solution because $2.5 \geq 2.5$ is true.

2.5, 3, 10; yes

Exercise 15 - Speed limit

Legal speeds are 65 or less: $s \leq 65$. (Speeds are also at least 0.)

$$s \leq 65$$



All speeds up to and including 65.

Exercise 16 - Elevator

$$w \leq 1500.$$

$1380 \leq 1500$ is true.

$w \leq 1500$; **yes, the group can ride**

Exercise 17 - Game points

$p \geq 8$. Closed circle at 8 and shade right.

$$p \geq 8$$



All scores of 8 or more win.

Exercise 18 - Book budget

$$4 \cdot 6 = 24 \leq 25; \text{ true.}$$

$$4 \cdot 7 = 28 \leq 25; \text{ false.}$$

He can buy at most 6 books.

Exercise 19 - Ride height

$$h > 48.$$

$48 > 48$ is false, and $48.5 > 48$ is true.

$h > 48$; **48 is not a solution, 48.5 is**

Exercise 20 - Infinitely many

Every number greater than 3 is a solution: 3.1, 3.01, 3.001, and so on, as well as 4, 5, 100.

There is no greatest solution and always another number between 3 and any solution.

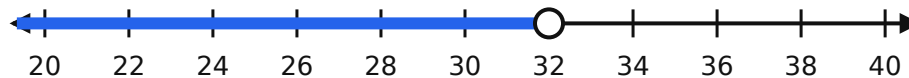
Infinitely many solutions

Exercise 21 - Snow day

$t < 32$. Open circle at 32, shade left.

32 is not a solution; 31.5 is.

$t < 32$



The school closes when the temperature is below 32.