Your Name

Mrs. T

2.1
Graphing Inequalities

10/1/2020

Notes

Objective: To be able to graph inequality solutions. To understand how to check solutions in inequalities.

Life Lesson/Skill: When we graph inequalities with two variables on a coordinate plane, we need to be able to check our solutions to understand how to shade. Graphing on a number line is similar to graphing on a coordinate plane.

S

> Since, inequalities have more than 1 solution, graphing on a number line covers all decimals in between integers using directional shading. But you need to make clear if the number compared to is a solution or not.

Graphing boundaries as solutions or not

>	Greater than	Open ⚪ circle
<	Less than	Open ⚪ circle
≥	Greater than or equal to	Closed ⚫ circle
≤	Less than or equal to	Closed ⚫ circle

* Final answer must be graphed

Since there is more than one possible answer for x that will make the inequality true... We shade all of them...which means a direction starting at the boundary value which when shaded is a solution____or when not shaded is not a solution____

Graphing Inequalities

x > 4   4 is not a solution so open point

X is all numbers bigger than 4

We shade what the solutions are

x ≥ 4   closed point   2 3 4 5 6

x < 4   X is all numbers smaller than 4   2 3 4 5 6

x ≤ 4   2 3 4 5 6

Board Work

$x > 10$

9 10 11

$x \geq -5$

-6 -5 -4

$x < 107$

106 107 108

$x \leq -12.5$

-14 -13 -12.5 -12 -11
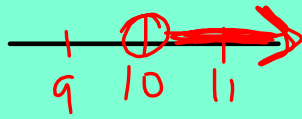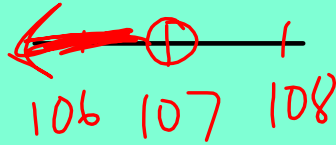
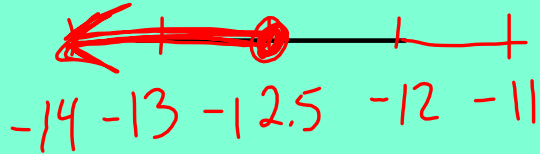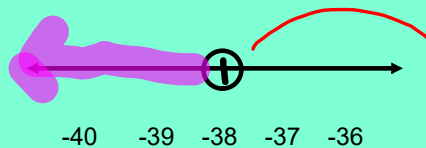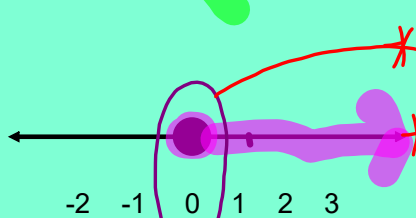
Write an inequality for the graph.

Write x and the number at the point. Then determine inequality sign from the direction.

arrows match inequality sign
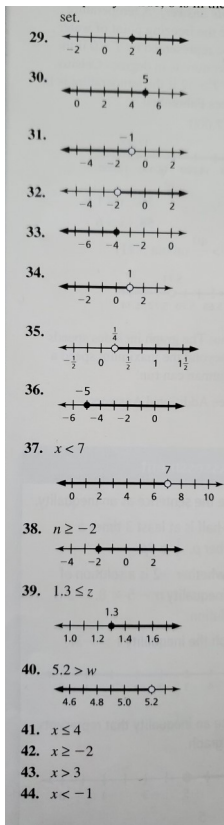

-40   -39   -38   -37   -36

open point
not equal to

$x < -38$

-2   -1   0   1   2   3

*closed point
is equal to

*all numbers bigger than or equal to 0 are shaded

$x \geq 0$

set.

29. Homework Key

30.

31.

32.

33.

34.

35.

36.

37. $x < 7$

38. $n \geq -2$

39. $1.3 \leq z$

40. $5.2 > w$

41. $x \leq 4$
42. $x \geq -2$
43. $x > 3$
44. $x < -1$

45. the graph C is matches. The temperature must be at least 2°F warmer, so the increase is represented by x ≥ 2

Checking Solutions for Inequalities

For the given value, state whether each inequality is *true* or *false*.

plug in # for variable, simplify to see if true.

$s - 7 < 5$, $s = 14$

$14 - 7 < 5$
$7 < 5$
False

14 is not an answer

$12 \geq \dfrac{a}{40} + 2$, for $a = 20$

$12 \geq \dfrac{20}{40} + 2$ True
$12 \geq \dfrac{1}{2} + 2$ 20 is a solution
$12 \geq 2\frac{1}{2}$

$3 + x \leq 12$, $x = 6$

$3 + 6 \leq 12$
$9 \leq 12$
True

6 is a solution for x

$y - 7 < 10$, $y = 17$

$17 - 7 < 10$
$10 < 10$
False

17 is not a possible solution for x

$$x + 2 \leq 10 \text{ , for } x = 8 \text{ is a solution}$$
$$8 + 2 \leq 10$$
$$10 \leq 10 \checkmark$$
$$\overline{} \text{ for } x = 3$$
$$x + 2 \leq 10$$
$$3 + 2 \leq 10$$
$$5 \leq 10$$
$$\text{False}$$

Homework Key: *Your homework should have the work to verify these for credit.*

15. no   16. no   17. yes

18. yes   19. yes   20. no

21. yes   22. no   23. yes

24. no

25.

a. h < 107

b. No; a height of 9 feet is equal to 108 inches, which is not less than 107 inches.