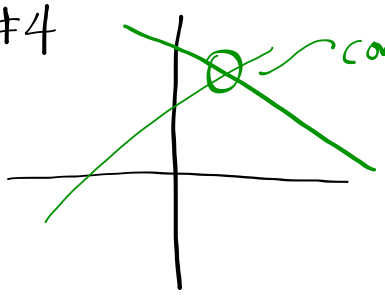
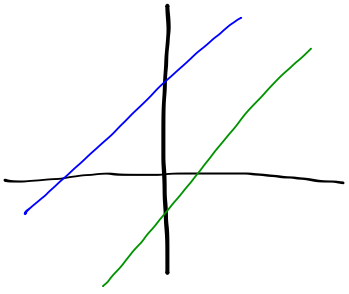
Warm Up

Any questions about the work you've done that the answer keys did not answer for you?

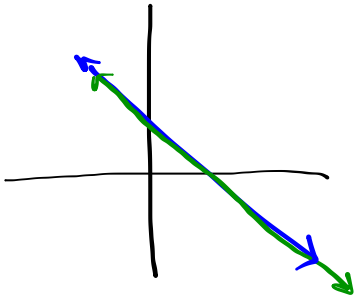
#4





Parallel Lines

No common solution because the lines never intersect



Infinite # of solutions

#8 $4x-5y=40$

$4[x=3y+24]$

$4x=12y+96$

$-(4x-5y=40)$

$-5y=-12y-56$

$+12y \quad +12y$

$\frac{7y}{7}=\frac{-56}{7}$

$y=-8$

We are going to begin talking about

Inequalities

Symbol Review:

$>$

Greater than

$\geq$

Greater than or equal

$<$

Less than

$\leq$

Less than or equal

What are some values of x that would satisfy (make it true) the following inequality?

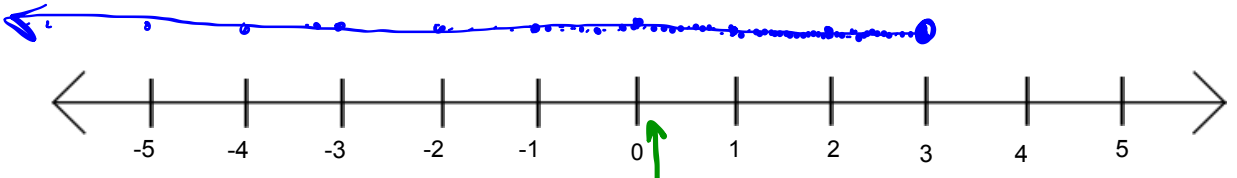
$$3x + 4 \leq 13$$

Find at least 5.

(Remember not all solutions need to be whole numbers or positive!)

Let's put all our solutions on a number line!

$3x + 4 \leq 13$



Is 4 a solution?

$3(4) + 4 \leq 13$

$12 + 4 \leq 13$

$16 \not\leq 13$

FALSE

which means

4 is not a solution

Is 0 a solution?

$3(0) + 4 \leq 13$

$4 \leq 13$

True!

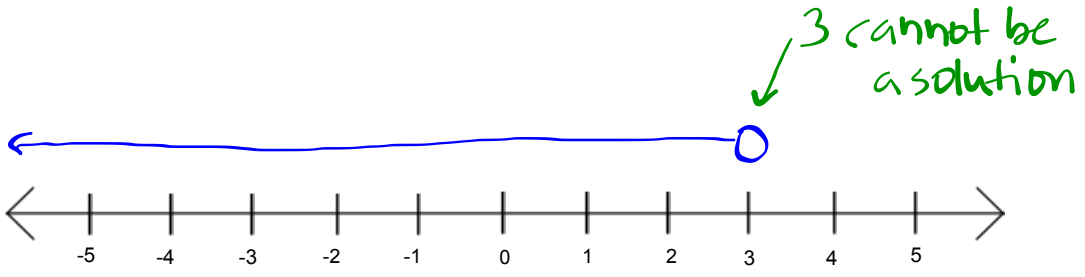
We can see that 0 is part of the solution set. (under the line we drew)

What if our inequality changed to:

$$3x + 4 < 13$$

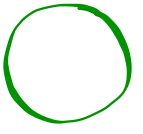
this has changed

What is the difference?



Open Circle vs. Closed Circle

$<$ or $>$



open circle on our number line

$\leq$ or $\geq$

closed circle on our number line

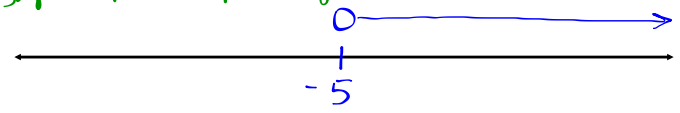
Some practice:

Graph all possible values of x on a number line.

Boundary number

$x > -5$

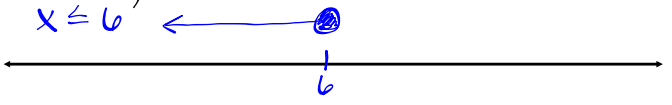
Sample: All values of x are greater than -5



$\frac{2x}{2} \leq \frac{12}{2}$

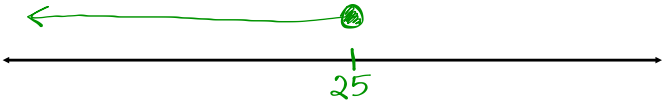
$x \leq 6$

All values of x are less than or equal to 6

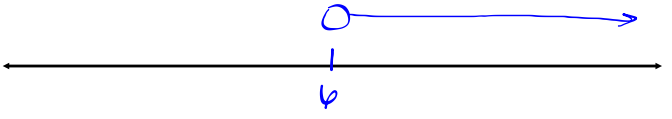


$25 \geq x$

25 is greater than or equal to all values of x



$6 < x$



$6 < x$

If you like x on the left

$x > 6$

you can flip the inequality BUT

make sure the inequality sign is still pointing at the number

Format for solving, graphing, and checking:

Solve

$$2x + 12 > 32$$

Let's pretend this is an equal sign

$$-12 \quad -12$$

$$\frac{2x}{2} > \frac{20}{2}$$

$$x > 10$$

Boundary #

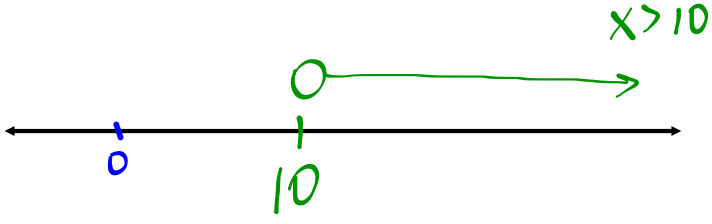
Check

$$2x + 12 > 32$$

$2(10)+12 = 32$

$32 = 32$ ✓

Graph



Check

test a point

$2x+12>32$

$2(0)+12>32$

$12>32$ False

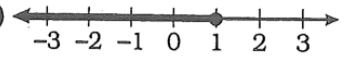
so 0 is not a solution

Where Do Airline Pilots Keep Their Uniforms?

For each exercise, write the letter of the answer in the box containing the exercise number.

In Exercises 1-6, match the inequality with its graph.

1. $x < 1$
2. $x \leq 1$
3. $x > -2$
4. $x \geq -2$
5. $-2 > x$
6. $1 \leq x$

A 

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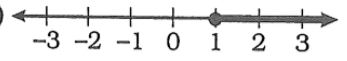
O 

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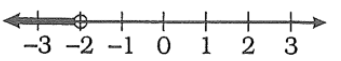
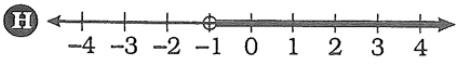
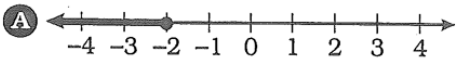
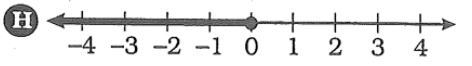
T 

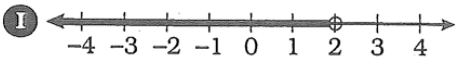
In Exercises 7-18, solve the inequality. Then graph the solution.

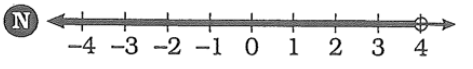
7. $4n + 1 < 9$
8. $7a - 2 \geq 5$
9. $3y + 10 \leq 4$
10. $8k - 3 > -27$
11. $\frac{x}{2} + 9 < 11$
12. $\frac{d}{6} - 4 \geq -5$
13. $\frac{u}{15} - 2 \leq -2$
14. $5p - 14 < 26$
15. $18 \leq 7b + 4$
16. $-9 < 12y + 3$
17. $-14 \geq \frac{x}{3} - 16$
18. $5 < \frac{m}{8} + 5$

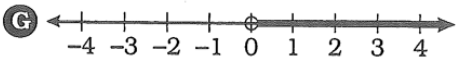
H 

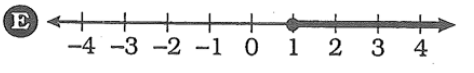
A 

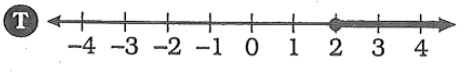
H 

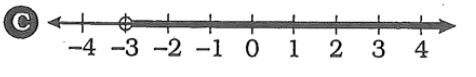
I 

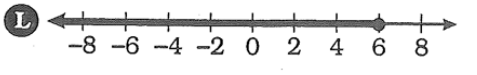
N 

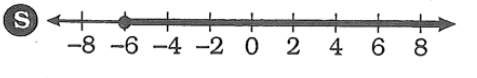
G 

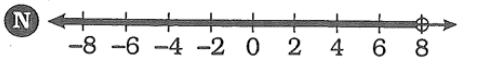
E 

T 

C 

L 

S 

N 

7	11	5	13	3	10	17	6	15	1	8	12	16	2	14	18	9	4

Homework

Finish classwork