

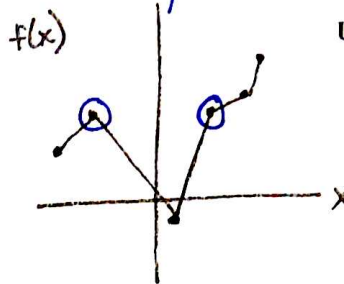
Pre-Calculus Honors
Objective 1.2: Interval Notation

Name Key
 Ms. Hindal
 Unit 1 Day 2

Do Now:

- If $h(x) = 2x^2 - 3$, what is x when $h(x) = 15$ $x = \pm 3$
- $g(3 + 2) - 2 = 9$
- If $f(x) - 3 = 2$, find x
 $x = 3$ or -4

x	g(x)
1	-2
2	4
3	3
4	-7
5	11



Interval Notation

All numbers from 3 to 10...

If it is inclusive then 3 and 10 would be **included**

If it is exclusive then 3 and 10 are **not** included (they are **excluded**)

Inclusive is...

$[]$
 \leq
 \geq

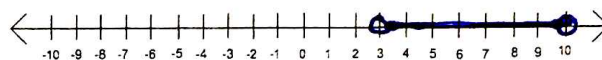
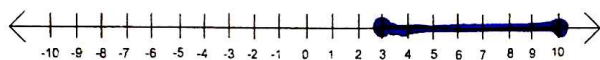
Exclusive is...

$()$
 $<$
 $>$

Examples:

1. Inequality: $3 \leq x \leq 10$

2. Inequality: $3 < x < 10$



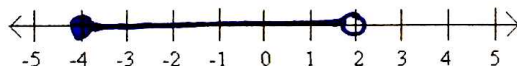
Interval Notation: $[3, 10]$

Interval Notation: $(3, 10)$

3. Inequality: $-4 \leq x < 2$

NOTE:

(lowest #, highest #)

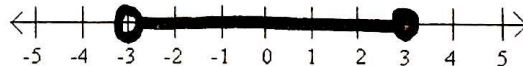
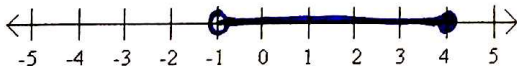


Interval Notation: $[-4, 2)$

Fill in the missing information

4. Inequality: $-1 < x \leq 4$

5. Inequality: $-3 \leq x \leq 3$



Interval Notation: $(-1, 4]$

Interval Notation: $[-3, 3]$

Bounded vs. Unbounded

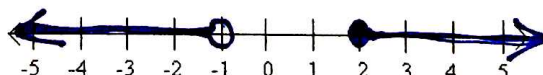
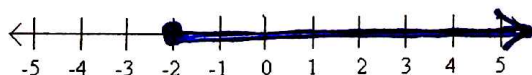
$($ no endpoint
 $)$ has endpoint

Unions

used to combine two separate intervals

Inequality: $x \geq -2$

Example: $x < -1$ OR $2 \leq x$

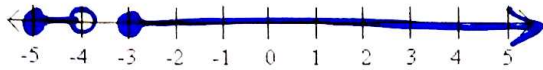


Interval notation: $[-2, \infty)$

Interval notation: $(-\infty, -1) \cup [2, \infty)$

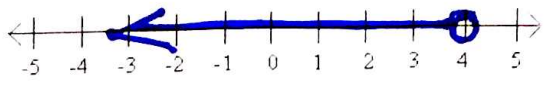
Fill in the missing information

1. Inequality: $-5 \leq x < -4$ OR $-3 \leq x$



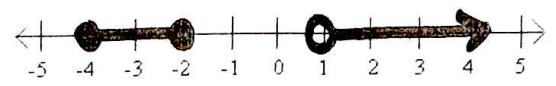
Interval notation: $[-5, -4) \cup [-3, \infty)$

2. Inequality: $x < 4$



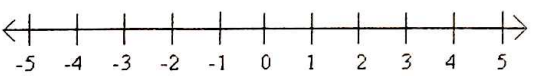
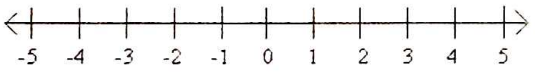
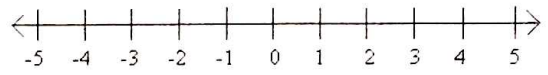
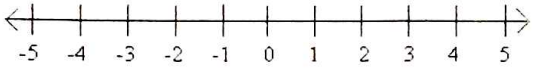
Interval notation: $(-\infty, 4)$

3. Inequality: $-4 \leq x \leq -2$ or $1 < x$



Interval notation: $[-4, -2] \cup (1, \infty)$

Scratch Work:



Homework:

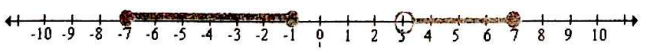
Write as an inequality and in interval notation.

1. $x \leq 3$



$(-\infty, 3]$

2.



$-7 \leq x \leq -1$ or $3 < x \leq 7$

$[-7, -1] \cup (3, 7]$

Write the following inequalities as interval notation:

3. $-2 < x < 1$ or $x > 1$ $(-2, 1) \cup (1, \infty)$

4. $x < -3$ or $x > 3$ $(-\infty, -3) \cup (3, \infty)$