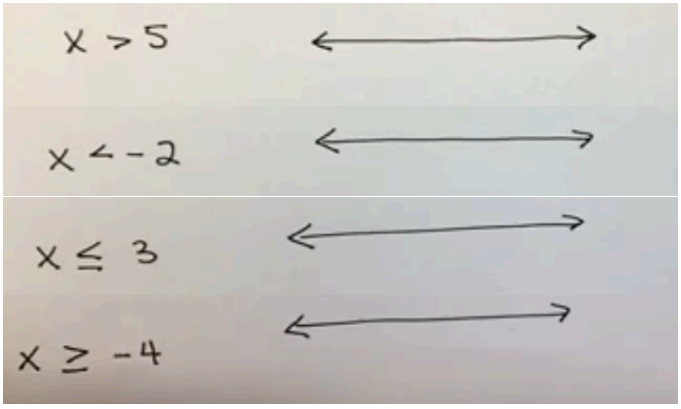
9.2 Interval Notation & Compound Inequalities NOTES

Write your questions here!

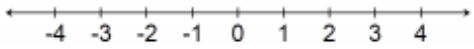
NOTES: Understanding Interval Notation

$9x - 7i > 3(3x - 7u)$



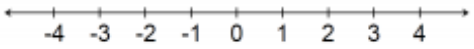
Graphing simple inequalities:

1. $x > -3$



Interval Notation:

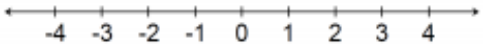
2. $1 \leq x$



Interval Notation:

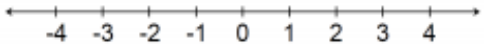
Graphing compound inequalities:

3. $-4 \leq x < 2$



Interval Notation:

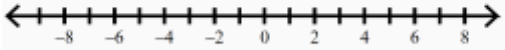
4. $x < -1$ or $x \geq 1$



Interval Notation:

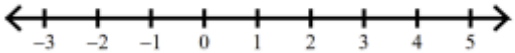
Solving Compound Inequalities.

7. $-33 \leq 6k - 3 \leq 57$



Interval Notation:

8. $-13 \leq 5 - 2v \leq 7$

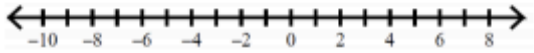


Interval Notation:

Write your questions here!

Solve for x:
5x – 3 < 12 and 4x + 1 > 25

9. $1 - x \leq -6$ or $x - 4 \leq -9$



10. $-(1 - 8n) \geq -5(4 + 2n) + 1$

Interval Notation:

Interval Notation:

SUMMARY:

Now, summarize your notes here!

_____

_____

_____

9.2 Interval Notation & Compound Inequalities PRACTICE

Graph the following compound inequalities.

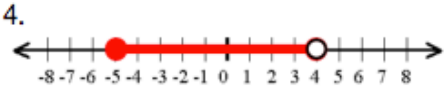
1. $x \geq 4$ or $x < -5$

2. $y > -2.5$ and $y \leq 3.2$

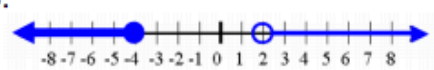
3. $\frac{1}{2} \leq x < 4$

Write a compound inequality that represents the following.

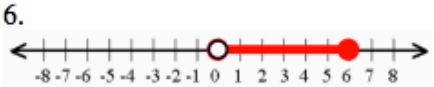
4.



5.

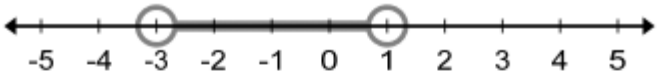


6.

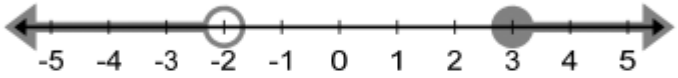


Write a compound inequality for each solution set shown below. Then write each compound inequality in interval notation.

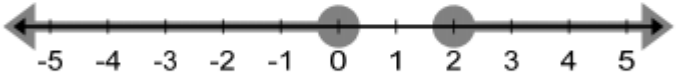
7.



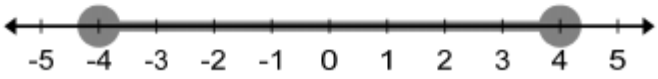
8.



9.



10.



Solve each inequality, graph its solution, and write the solution in interval notation.

11. $3x-4\le 5$ or $2x-6>6$

12. $-5\le 3-2x<11$

13. $-3<3+m\le 7$

14. $2r+8>16-2r$ and $7r+21<r-9$

15. $3n+10\le 13$ or $2n\ge 5n-12$

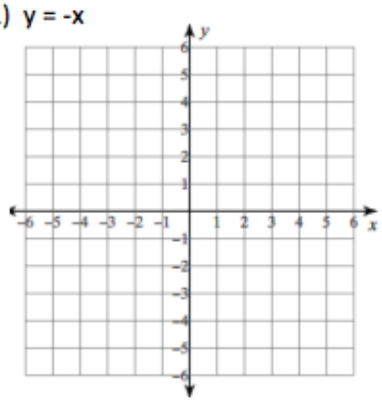
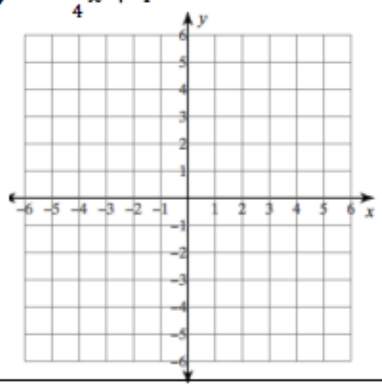
16. $4m-5>7$ or $4m-5<-9$

17. $10-2p>12$ and $7p<4p+9$

18. $6-c>c$ or $3c-1<c+13$

Create a compound inequality for the following word problems.

19. Nine less than a number is no more than 8 and is no less than 3.	20. The sum of four times a number and eight is between zero and twelve.
21. One half a number increased by three is greater than zero or less than or equal to negative three.	22. Each type of fish thrives in a specific range of temperatures. The optimum temperatures for sharks range from 18 degrees Celsius to 22 degrees Celsius. Write an inequality that represents the temperatures where sharks will NOT thrive.
23. About 20% of the time you sleep is spent in rapid eye movement (REM) sleep, which is associated with dreaming. If an adult sleeps 7 to 8 hours, how much time is spent in REM sleep?	24. A store is offering a $30 mail in rebate on all color printers. Luis is looking at different color printers that range in price from $175 to $260. How much can he expect to spend after the rebate?

Skillz Review		
Graph the line.	Evaluate.	Solve.
1) y = -x 	2) $b^5 - 2a^2, when\ a = 5\ and\ b = -2$	3) $3x - 3(x - 6) = 32 + 2x$
4) $y = -\frac{3}{4}x + 4$ 	5) $-3x^3 + 2x^2, when\ x = -2$	6) $-6m + 6 + 6 = 4 - 7m$

9.2 Interval Notation & Compound Inequalities

9.2 APPLICATIONS

1. Sully took a class field trip that included the Ice Skating, lunch at Yabadoos and then the German Ballet Theatre. The class is first going Ice Skating. They will then proceed 85km to Yabadoos for lunch. Finally, they will drive 75km from Yabadoos to the German Ballet Theatre before finally returning back to the Ice Skating rink.

   a. The triangle inequality theorem states that the sum of the lengths of any two sides of a triangle is greater than the length of the third side. Write a compound inequality that represents the distance from the German Ballet back to the Ice Skating Rink.

   b. Sully said the distance from the German Ballet theatre to the Ice Skating Rink is 170 km, but Brust knows that is incorrect. Show the calculations Brust would use to prove Sully wrong.

2. Between Frankfurt, Germany, and Kaiserslautern, Germany, there is a portion of the autobahn that has no restricted speed limit. It does however, have a minimum speed limit of 80 km/h.

   a. Write an inequality that describes the speed (s) of a vehicle on the autobahn with no speed restriction.

   b. Between Baumholder and Ramstein, the speed limit of 130 km/h is posted and the minimum speed drops to 60 km/h. Write a compound inequality that describes the speed (s) of a vehicle on that section of the autobahn.

SAT PREP!!

MULITPLE CHOICE

If $4b = 6d = 5e = 7c > 0$, which of the following is true?

(A) $b < e < d < c$
(B) $b < d < e < c$
(C) $b < e < c < d$
(D) $c < d < e < b$
(E) $d < e < c < b$

GRID IN

If $xy + y = x + 2z$, what is the value of y when $x = 2$ and $z = 3$?