



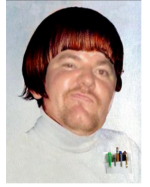
To the video!

Write your questions and thoughts here!

# 1.2 – Solving Inequalities

Valentine's Day message:

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



## Review. SOLVE LINEAR EQUATIONS

### Solve and Check.

1.  $n - 2 + 8n = 7$     2.  $-2a - \frac{9}{4} + \frac{3}{2} = -\frac{1}{4} - \frac{3}{2}a$     3.  $4(1 - 4n) = -4(3n + 2) - 4$

Algebra I  
Section 3.4



4.  $2(1 - 3n) + 5 = -4(2n + 1)$

5.  $\frac{-2}{3}k - \frac{9}{2} = -\frac{3}{2} - \frac{4}{3} - \frac{3}{2}k$

There are four symbols we use to represent inequalities. What are they?

less than

greater than

less than or  
equal to

greater than or  
equal to

Algebra I  
Section 7.3

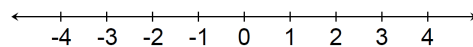


Always read the inequality **FROM THE VARIABLE**:

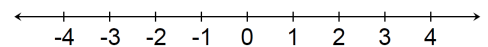
- a.  $x \leq 21$  is read x is \_\_\_\_\_ 21
- b.  $3 < d$  is read d is \_\_\_\_\_ 3
- c.  $1 > y$  is read y is \_\_\_\_\_ 1
- d.  $3.14 \geq V$  is read V is \_\_\_\_\_ 3.14

### Graphing simple inequalities:

1.  $x > -3$

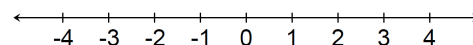


2.  $1 \leq x$

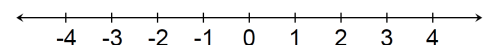


### Graphing compound inequalities:

3.  $-4 \leq x < 2$



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



Algebra I  
Section 7.3



Write your questions and thoughts here!

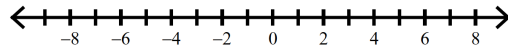
### Solving Simple Inequalities (without graphing).

5.  $\frac{2}{3}x - 7 > 23$

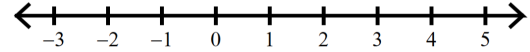
6.  $6 - 4x \leq 10$

### Solving Compound Inequalities.

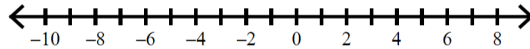
7.  $-33 \leq 6k - 3 \leq 57$



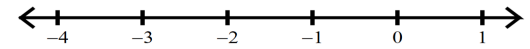
8.  $-13 \leq 5 - 2v \leq 7$



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



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



Now summarize what you have learned!

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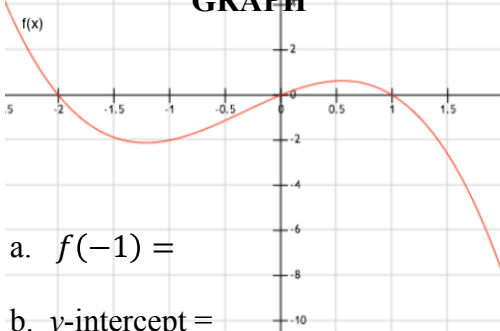
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## ALGEBRA SKILLZ!

### GRAPH



a.  $f(-1) =$

b.  $y$ -intercept =

c.  $f(x) = 4$  when  $x =$

d.  $x$ -intercept(s) =

### SIMPLIFY

Simplify the radical

a.  $\sqrt{98}$

b.  $2\sqrt{12}$

### SOLVE

Solve for  $x$ .

a.  $\frac{-5}{2} + \frac{x}{2} = 10$

### FACTOR

b.  $x^2 - 9x + 20$

## 1.2 Practice - Solving Inequalities

Solve each equation.

$$1) -2x - \frac{7}{4} = -\frac{47}{20} - \frac{3}{2}x$$

$$2) 2k + \frac{4}{3} = \frac{3}{2} + \frac{5}{3}k$$

$$3) \frac{77}{9} + a + \frac{17}{6}a = -\frac{11}{6}a - \frac{5}{3}a$$

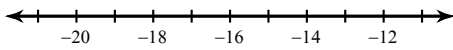
$$4) m + \frac{1}{2} = \frac{2}{3}m + \frac{5}{6}$$

$$5) k + \frac{5}{4} = \frac{9}{4} + \frac{3}{2}k$$

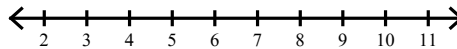
$$6) -\frac{9}{4}n - \frac{1}{3}n = \frac{7}{4}n + \frac{39}{5}$$

Solve each inequality and graph its solution.

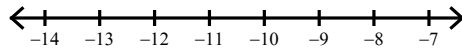
$$7) 6 + m \geq -13$$



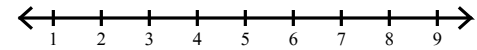
$$8) -16n \geq -112$$



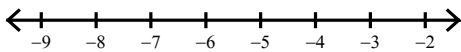
$$9) 1 \leq -8 - k$$



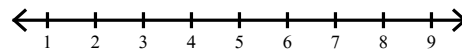
$$10) -7(1 + 8m) + 8 > -335$$



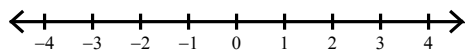
$$11) 84 > 6(-2n + 6)$$



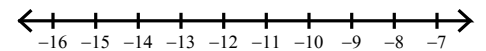
$$12) 60 < 2(2x - 4) - 6(-x - 3)$$



$$13) 3n + 3(5n + 6) \geq 7(3n + 3)$$

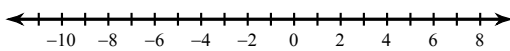


$$14) -3 \leq \frac{x}{4}$$

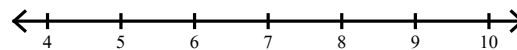


Solve each compound inequality and graph its solution.

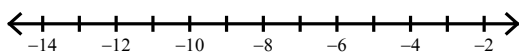
$$15) -25 < -5r \leq 50$$



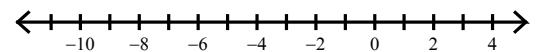
$$16) -44 < 1 - 5k < -34$$



$$17) \frac{n}{5} > -1 \text{ or } 4n < -40$$



$$18) 3 + 6a \leq -45 \text{ or } -7 - 5a < -2$$



# 1.2 Application and Extension

1. Solve:  $\frac{1}{2}x - 2 = \frac{3}{7}x - \frac{1}{2}$

2.  $20 < 2x - 4 \leq 22$

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!!

## MULTIPLE 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  $z = 3$ ?

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	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9