

GRAPHING BASIC INEQUALITIES

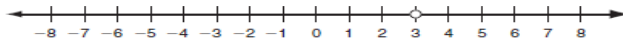
DUE EXAM DAY

NAME AND CLASS PD _____

We read from left to right. Practice writing the variable first; compare the variable to a number.

Graph $x \leq 3$.

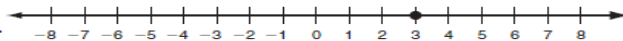
Step 1: Draw a circle on the number.



Step 2: Decide whether to fill in the circle.

If $>$ or $<$, leave empty.

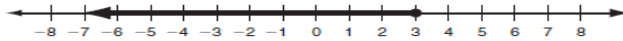
If \geq or \leq , fill in.



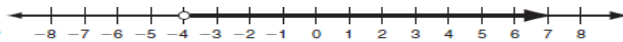
Step 3: Draw an arrow.

If $<$ or \leq , draw arrow to left.

If $>$ or \geq , draw arrow to the right.



Write the inequality shown by the graph.



Step 1: Write a variable and the number indicated by the circle.

$$x ? -4$$

Step 2: Look at the direction of the arrow.

If arrow points left, use $<$ or \leq .

If arrow points right, use $>$ or \geq .

$$x > \text{ or } \geq -4$$

Step 3: Look at the circle.

If circle is empty, use $>$ or $<$.

If circle is filled in use, \geq or \leq .

$$x > -4$$

The Holt Algebra 1 textbook teaches like this, but be careful!! This will only work if you write the variable first!!

Graph or write the inequality shown by the graph – simplify first if necessary:

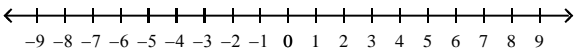
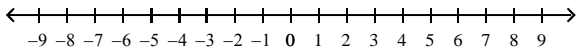
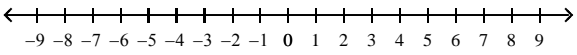
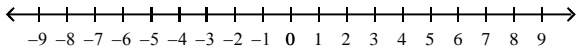
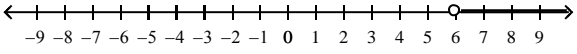
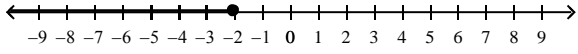
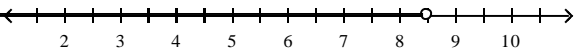
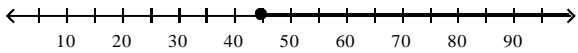
<p>1. $m \geq 8 - 3$</p>	<p>2. $p < 3.5$</p>
<p>3.</p>	<p>4.</p>
<p>5. $k > -12$</p>	<p>6. $-6\frac{1}{2} \leq w$</p>
<p>7. $b \leq 2^3 - 10$</p> <p style="text-align: center;">SIMPLIFY!</p>	<p>8. $n < -\sqrt{2(5) + 6}$</p>

BASIC INEQUALITIES HOMEWORK **DUE EXAM DAY** **NAME/CLASS** _____

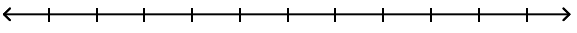
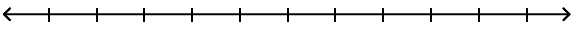
Describe the solutions of each inequality in words:

1. $2m \geq 6$
2. $t = 3 < 8$
3. $1 < x - 5$
4. $-10 \geq \frac{1}{2}c$

Graph the inequality or write the inequality for the given graph:

<p>5. $x > -7$</p> 	<p>6. $p \geq 2^3$</p> 
<p>7. $4.5 \leq t$</p> 	<p>8. $y < -\sqrt{14-5}$</p> 
<p>9.</p> 	<p>10.</p> 
<p>11.</p> 	<p>12.</p> 

Define a variable and write an inequality for each situation. Graph the solutions.

<p>13. Josephine sleeps more than 7 hours each night.</p> 
<p>14. In 1955, the minimum wage in the U.S. was \$0.75 per hour.</p> 

Define a variable and write an inequality for each situation.

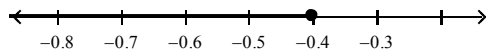
15. To qualify for the job, applicants must have more than 3 year of experience in the field.

16. As of August 1996, the speed limit on rural interstates in North Carolina is 70 mph.

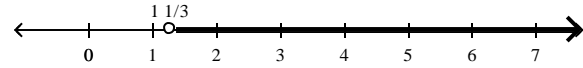
17. In 2005, the minimum wage in the U.S. was \$5.15 per hour.

Write the inequality shown by each graph.

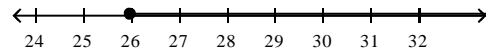
18.



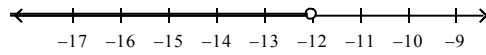
19.



20.



21.



SOLVING INEQUALITIES WITH TWO VARIABLES

DUE EXAM DAY

Solving inequalities is just like solving equations with ONE MAJOR DIFFERENCE. In inequalities, negative



coefficients require a sign direction change!
negative you MUST change the direction of the inequality!!

That is when you multiply or divide by a

The Rules:

- Use the same processes of isolating the variable as you would an equation.
- Inequalities with an equal sign included: do not drop or add “equal to” signs. This is a primary cause of wrong answers in inequalities; people forget and drop the equal sign.
- When you get to the final step of clearing out the coefficient
 - If it is positive, you leave the sign alone.
 - **When you multiply or divide by a negative, flip the direction of the inequality!!**

Examples:

move x to the left side $2x + 4 > 3x - 2$ $-3x \quad -3x$ subtract 3x $-1x + 4 > -2$ $\quad -4 \quad -4$ subtract 4 $(-1) - 1x > -6 (-1)$ multiply by -1 $\quad \quad \quad x < 6$ SIGN CHANGE!!!!	same inequality but, move x to the right side $2x + 4 > 3x - 2$ $-2x \quad -2x$ subtract 2x $4 > x - 2$ $+2 \quad +2$ Add 2 $6 > x$ No sign change SAME ANSWER
ALWAYS CHECK YOUR ANSWER!!!! $x < 6$ PICK A NUMBER LESS THAN 6 (I PICK ZERO) $2(0) + 4 > 3(0) - 2$ $4 > -2$ TRUE	

HOMEWORK: Solve each inequality and graph

1. $b + 8 > 15$	2. $t - 5 \geq -2$
3. $-4 + \frac{x}{3} \geq 1$	4. $g + 8 < 2$
5. $-9 \geq m - 9$	6. $15 > 2d + 19$
7. $-2x > 6$	8. $-\frac{a}{5} < 1$

9. $\frac{3}{4}b > 3$	10. $-15y < -30$
11. $2x + 30 \geq 7x$	12. $2k + 6 < 5k - 3$
13. $3b - 2 \leq 2b + 1$	14. $2(3n + 7) > 5n$
15. $5s - 9 < 2(s - 6)$	16. $-3(3x + 5) \geq -5(2x - 2)$
17. $1.4z + 2.2 > 2.6z - 0.2$	18. $\frac{7}{8}p - \frac{1}{4} \leq \frac{1}{2}p$
19. $v + 1 > v - 6$	20. $3(x + 4) \leq 3x$
21. $-2(8 - 3x) \geq 6x + 2$	