

BE-1A

TUESDAY 4-15-08

SOLVE EACH EQUATION:



"A MATH EXPRESSION WITH AN EQUALS SIGN"

💡 USE THE GRE.

① $4x - 3 = 16$

② $2x + 1 = -5x + 15$

③ $\frac{2}{7}x = 6$

④ How can you check your answers?

* Have your "improvement plan" ready
to hand in or your "reasons!"

$<, >, \leq, \geq$

Use THESE symbols in a MATH expression
And state if the expression is true or false:

$$4 < 6$$

$$5 > 2$$

$$4 \leq 4$$

$$5 \geq 2$$

$$5 \geq 5$$

$$5 \geq 6$$

$$4 \leq 4.01$$

$$4 \leq 4.00$$

$$4 \leq 3.99$$

All OF THESE expressions ARE NOT EQUATIONS

So they ARE called INEQUALITIES

Similar TO EFFICIENT, INEFFICIENT
digestion, indigestion
direct, indirect
decent, indecent

How do inequalities behave when you $+$, $-$, $\times$, $\div$? Lets test a few cases?

Addition: $4 < 6$
 $+2 \quad +2$
 $6 \stackrel{?}{<} 8$
 $\checkmark$

Subtraction: $4 < 6$
 $-2 \quad -2$
 $2 \stackrel{?}{<} 4$
 $\checkmark$

Multiply: $4 < 6$
 $\times 2 \quad \times 2$
 $8 \stackrel{?}{<} 12$
 $\checkmark$

Divide: $4 < 6$
 $\div 2 \quad \div 2$
 $2 \stackrel{?}{<} 3$
 $\checkmark$

Multiply
by A Negative $4 < 6$
 $\times -2 \quad \times -2$
 $-8 \stackrel{?}{<} -12$
 No!

Divide
by A Negative $4 < 6$
 $\div -2 \quad \div -2$
 $-2 \stackrel{?}{<} -3$
 No!

Fix $-8 > -12$
 By
 "Flipping"
 the
 inequality
 symbol $\checkmark$

Fix by $-2 > -3$
 "flipping"
 the
 inequality
 symbol $\checkmark$

GRI = Golden Rule of Inequalities

"Whatever you do to one side do to the other AND when you multiply or divide by a negative, flip the inequality symbol."

- When solving inequalities, many times you won't have to "flip"
- Sometimes, you will have to flip more than once.

$$\text{ex) } \frac{4x}{4} \leq \frac{16}{4}$$

$$\boxed{x \leq 4}$$

$$\text{ex) } \frac{-4x}{-4} \leq \frac{16}{-4}$$

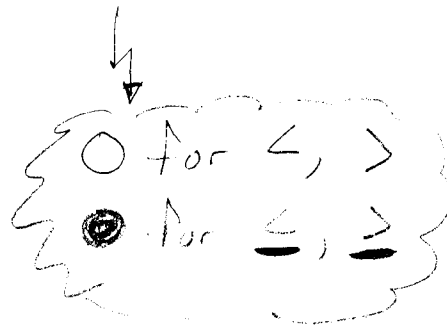
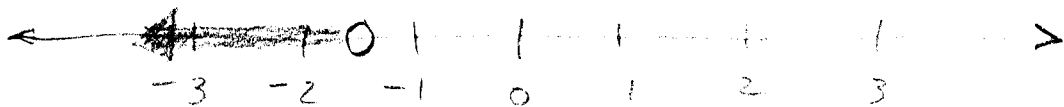
$$\boxed{x \geq -4}$$

$$\text{Ex) } 2x + 6 < 3$$

$$\quad \quad -6 \quad -6$$

$$\frac{2x}{2} < \frac{-3}{2}$$

$$x < -\frac{3}{2}$$



$$\text{Ex) } -3x + 4 > 2$$

$$\quad \quad -4 \quad -4$$

$$\frac{-3x}{-3} > \frac{-2}{-3}$$

$$x < \frac{2}{3}$$

$$\begin{array}{rcl} \text{Ex)} & 8 & \leq x + 4 \\ & -4 & \quad -4 \end{array}$$

$$4 \leq x$$

Do NOT leave x on right,
but, when you REWRITE
with x on left

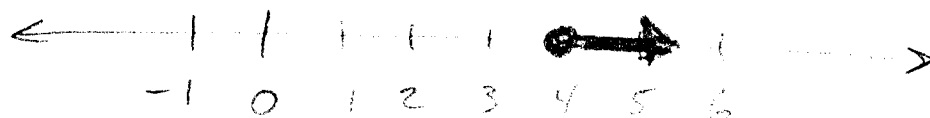
"flip the inequality"

If 4 is less than or equal to x
then x must be greater than or equal to 4

$$4 \leq x$$

$$x \geq 4$$

Proper way to leave
Answer.



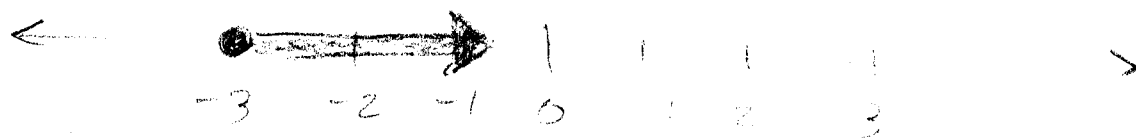
💡 Moved "0" to left for this graph.

$$\text{EX)} \quad -5x - 1 \leq 14$$

$$\quad \quad +1 \quad \quad +1$$

$$\frac{-5x}{-5} \leq \frac{15}{-5}$$

$$x \geq -3$$



💡 $>, \geq$ points to $\rightarrow$

$<, \leq$ points to $\leftarrow$

💡 MAKE SURE Arrow on graph is
bigger than arrows on number line
(X Axis)

Homework: Pg 321 # 5, 6, 7

329 # 6, 7, 8 no checks yet.

335 # 4, 5, 6 no checks yet.