Section 6.1

Solving Equations by Using Inverse Operations

Feb 15-8:33 PM

Inverse Operations

Inverse operations is to do the opposite
(undo or reverse each other's result)

Addition and subtraction are inverse operations
$+$ $-$

Multiplication and division are inverse operations
X $\div$

Let's think

$x + 5 = 8$

You have to show work!

Algebraic Solution

Start with x....(What operations is applied to x?)

$$x + 5 = 8$$

undo the addition
subtract each side by 5

$$x + 5 - 5 = 8 - 5$$
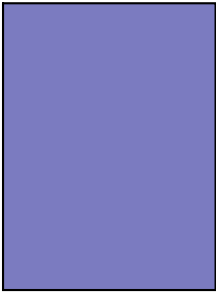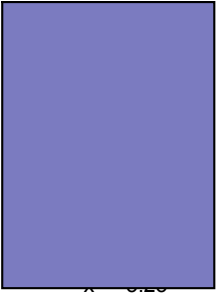
$$x = 3$$

Feb 15-8:46 PM

You try
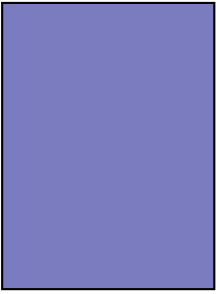
1) $-2w + 6 = -30.8$

2) $\dfrac{b}{-5} - 7 = 15.8$

3) $7 = \dfrac{n}{4} - 15.6$

Feb 15-10:32 PM

Warm Up!   Math

Solve for x

$-6 + 5x = -36$

$\dfrac{2x}{3} + 8 = \dfrac{9}{2}$

$5x + 4 = 29$

$5(x-7) = -15$

Feb 23-6:17 PM

Solving Equations...

Your mission
is to keep
everything
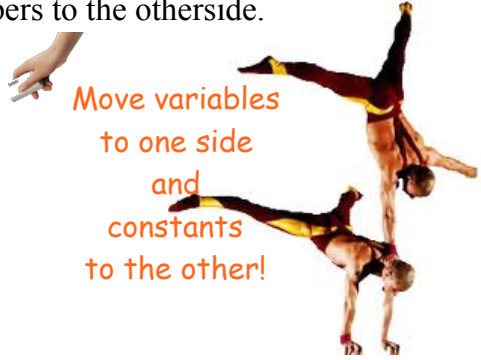in balance!!

What ever you do to one side...
you must do to the other!!

Feb 21-6:51 PM

Solve for x...

6x + 2 = 10 + 4x

The only difference from last section is that numbers and letters appear on both sides and you have to bring all letters to one side and all numbers to the otherside.

Move variables
to one side
and
constants
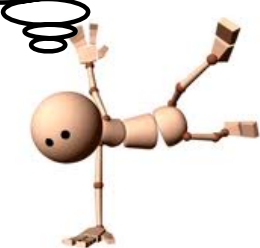to the other!

Feb 21-7:08 PM

$-3c + 7 = 2c - 8$

I can keep this one balanced... let me try!!

Feb 21-7:34 PM

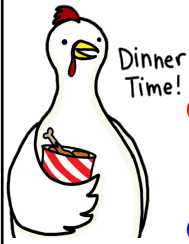You think that is hard... try doing this!!!

$$\frac{122}{r} = 3 \quad , \quad r \neq 0$$

Public service announcement.

Feb 21-7:35 PM

Two restaurants charge different rates for catering a party

Dinner Time!

Company A: $30 plate plus an addition flat fee of $300

Company B: $55 a plate

When do the two companies charge the same amount???

Mar 1-7:53 PM

Solve

9z-1-7z = 7-6z-15

Mar 12-7:59 AM
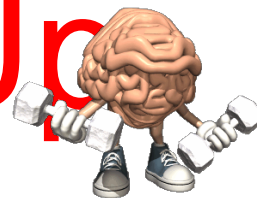
$$\frac{2}{3}(6x + 9) = \frac{1}{2}(10x - 2)$$

Mar 12-8:02 AM

$$\frac{1}{2}(3x - 2) = \frac{2}{3}\left(\frac{2x}{1} - \frac{5}{1}\right)$$

Jun 3-11:13 AM

Warm-Up

$$\frac{3}{2}(4 + 6r) = \frac{2}{3}(12 - 3r)$$

$$2u - 7 + 5u = 14 + 4u - 3$$

Feb 28-12:12 PM

Introduction to Linear Inequalities

What is an inequality?   Tallest man 7 feet 9 inches or 2.36m tall $>$ Smallest man 29 inches or 0.74m tall

We use inequalities to model situations

that can be described by a

range of numbers instead of a single number.

"Pick a number greater than 7."

$$n > 7$$

Feb 28-10:49 AM

When one quantity is....

less than $<$

greater than $>$

less than or equal to $\leq$

greater than or equal to $\geq$

P
30 min
9 AM – 6 PM
← MON-FRI →

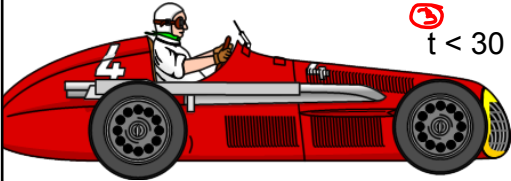Which of these inequalities describes the time,
t minutes, for which a car could be legally parked?

① t > 30   ② t ≥ 30

③ t < 30   ④ t ≤ 30
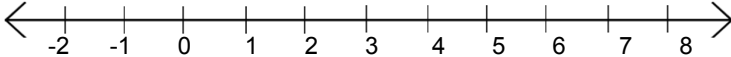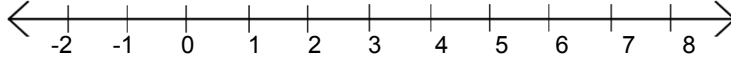
Feb 28-11:28 AM

Graphing inequalities

a > 3
```
<---+----+----+----+----+----+----+----+----+----+--->
   -2   -1    0    1    2    3    4    5    6    7    8
```

a ≥ 3
```
<---+----+----+----+----+----+----+----+----+----+--->
   -2   -1    0    1    2    3    4    5    6    7    8
```

b < -5
```
<---+----+----+----+----+----+----+----+----+----+--->
  -10   -9   -8   -7   -6   -5   -4   -3   -2   -1    0
```

b ≤ -5
```
<---+----+----+----+----+----+----+----+----+----+--->
  -10   -9   -8   -7   -6   -5   -4   -3   -2   -1    0
```
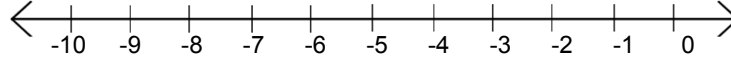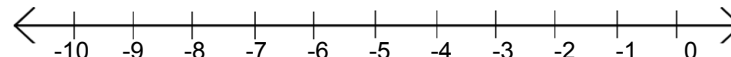
Feb 28-11:48 AM

Graphing inequalities

$-2 < p < 3$
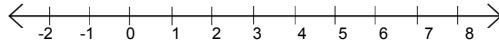
$0 \le a \le 8$

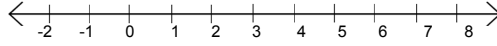$-5 < t \le -2$
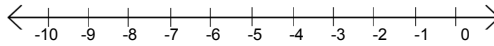
$-10 \le g < -6$
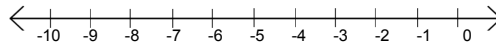
Feb 28-11:48 AM

Write the inequality given by the following graph.

1)

2)

$-6 < t$
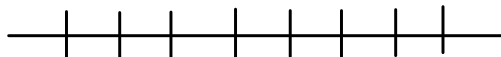
Mar 15-7:29 PM

Try These!

2. $5 > m + 12$ 3. $-2y \leq -3y + 1$

←―+―+―+―+―+―+―+―→   ←―+―+―+―+―+―+―+―→

Mar 15-3:56 PM

4. $-4y + 7 > -5y + 1$

Try to move letter so they end up
with a positive number infront.

←―+―+―+―+―+―+―→

Mar 16-2:31 PM

Feb 21-8:57 PM

Properties of Inequalties

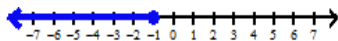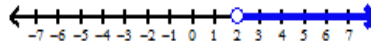1) When you multiply or divide a inequality by a positive number the inequality remains the same.

Example) $5 > -1$

$$5(3) > (-1)(3)$$

$$15 > -3$$

2) When you multiply or divide a inequality by a "negative number" the inequality must be reversed(switched) in order to remain true.

$$12 > -10$$

$$12 \div (-2) \quad -10 \div (-2)$$

Switch inequality since divided by a negative

$$12 \div (-2) < -10 \div (-2)$$

$$-6 < 5 \qquad \text{FIX}$$

NOTE:

When solving an inequality, we use the same strategy as for solving an equat

BUT

Remember when we divide or multiply by a negative number, we reverse the inequality sign.

Feb 21-9:39 PM

11

Solving a One-Step Inequality

Solve each inequality. Graph the solution.

1) $\dfrac{x}{5} \leq -2$

_____

2) $\dfrac{k}{-7} \geq 10$

_____

3) $-6r \geq 72$

_____

4) $13t \leq -26$

_____

Feb 21-9:52 PM

Solving a Multi-Step Inequality

What if you solve for a negative "variable"

1) $-2n - 5 > 6n + 7$

Mar 19-8:25 PM

You Try

Solve each inequality, check your solution and graph

2) $-15 - 4x \leq 3x + 6$

3) $8m - 2 \geq 13 + 5m$

Feb 21-10:09 PM

Solving a Multi-Step Inequality

1) $-1.6n - 5 > 4.1n + 10.96$

Step 1) Bring all letters to one side and number to the other.

$-1.6n - 5 + 5 > 4.1n + 10.96 + 5$ Add 5 to each side

$-1.6n > 4.1n + 15.96$

$-1.6n - 4.1n > 4.1n - 4.1n + 15.96$ Subtract 4.1n from each side.

$-5.7n > 15.96$ Step 2) Divide each side by the number in front of the letter.

$\dfrac{-5.7n}{-5.7} < \dfrac{15.96}{-5.7}$ Divide each side by "-5.7" and since negative reverse the sign.

$n < -2.8$

The solution is all numbers smaller than -2.8

✓ Check you work

Choose a number less than -2.8.........-3

Substitute n = -3 into the original inequality

See if left hand side is greater than right hand side

$-1.6n - 5 > 4.1n + 10.96$

Left hand side	Right hand side
$-1.6n - 5$	$4.1n + 10.96$
$-1.6(-3) - 5$	$4.1(-3) + 10.96$
$4.8 - 5$	$-12.3 + 10.96$
0.2	-1.34

$0.2 > -1.34$

IT WORKS 😊

Feb 21-10:02 PM

Textbook Questions

Page 308-309

Questions: 3,4,7,8,10,11,13,15,16

Page 310 Practice Test

All Questions

May 27-1:48 PM

Jun 3-11:30 AM