What can you do to simplify each?

$$\frac{x}{3x+5}$$

NOTHING

$$\frac{4x-8}{2x+10} = \frac{2(2x-8)}{2(x+5)}$$

$$= \frac{2x-4}{x+5}$$

If instead of $\frac{x}{3x+5}$ you had $\frac{3x+5}{x}$ could you simplify?

You can't simplify but you can Rewrite this as

$$\frac{3x}{x} + \frac{5}{x} = 3 + \frac{5}{x}$$

AND

Eric said that he was going to buy a hat AND a shirt.

Eric bought only a hat. Is his original statement true or false?

Eric bought only a shirt. Is his original statement true or false?

Eric bought both a hat and a shirt. Is his original statement true or false?

A statement involving the word AND is only true if:
BOTH parts are true.

OR

Amani said that tonight she would study OR listen to music.

- Amani only studied. Is her statement true or false?
- Amani only listened to music. Is her statement true or false?
- Amani studied and listened to music. Is her statement true or false?

A statement involving the word OR is true if:

- Only one of the statmens is true
  or
- If both statements are true

Compound Inequalities

Two inequalities connected with one of the following words:

AND OR

$13 < 4x + 5 < 21$

This compound inequality is really a combination of the two following inequalities using the word AND:

$4x+5>13$ AND $4x+5<21$

Solve.

$13 < 4x + 5 < 21$

$-5 \quad -5 \quad -5$

$\frac{8}{4} < \frac{4x}{4} < \frac{16}{4}$

$2 < x < 4$

Between 2 & 4

$4x+5 > 13$ AND $4x+5 < 21$

$-5 \quad -5 \qquad -5 \quad -5$

$\frac{4x}{4} > \frac{8}{4} \qquad \frac{4x}{4} < \frac{16}{4}$

$x > 2$ AND $x < 4$

These are the same answer

Solve.

$4x - 3 > 7$ or $8 - 2x < 20$

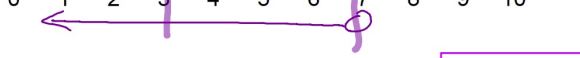
$+3 \quad +3 \qquad -8 \quad -8$

$\frac{4x}{4} > \frac{10}{4} \qquad \frac{-2x}{-2} < \frac{12}{-2}$

$x > 2.5$ OR $x > -6$

Inequalities connected with the word AND:

$w > 3$ AND $w < 7$

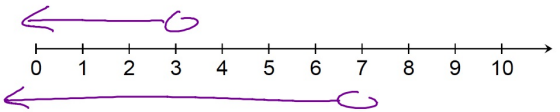


Can be written as one inequality: $3 < w < 7$

A compound inequality using AND is true only when both inequalities are true. Using a number line graph, both inequalities are true for values of W greater than 3 and less than 7----- Between 3 and 7.

Inequalities connected with the word AND:

$w < 3$ AND $w < 7$



Can be written as one inequality: $w < 3$

A compound inequality using AND is true only when both inequalities are true. Using a number line graph, both inequalities are true for values of W less than 3.