Mathematical Statements involving
with these two words:

AND OR

AND

For dinner Eric said that he will eat a salad AND a hamburger.

Eric ate only a salad. Is his original statement true or false? False

Eric ate only a hamburger. Is his original statement true or false? False

Eric ate both a salad and a hamburger. Is his original statement true or false?

TRUE

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

True

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:

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

These two inequalities share the middle statement 4x + 5

Solve.

$13 < 4x + 5 < 21$

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

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

$2 < x < 4$

You could separate the two inequalities a and solve them separately.

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

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

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

$x > 2$ AND $x < 4$