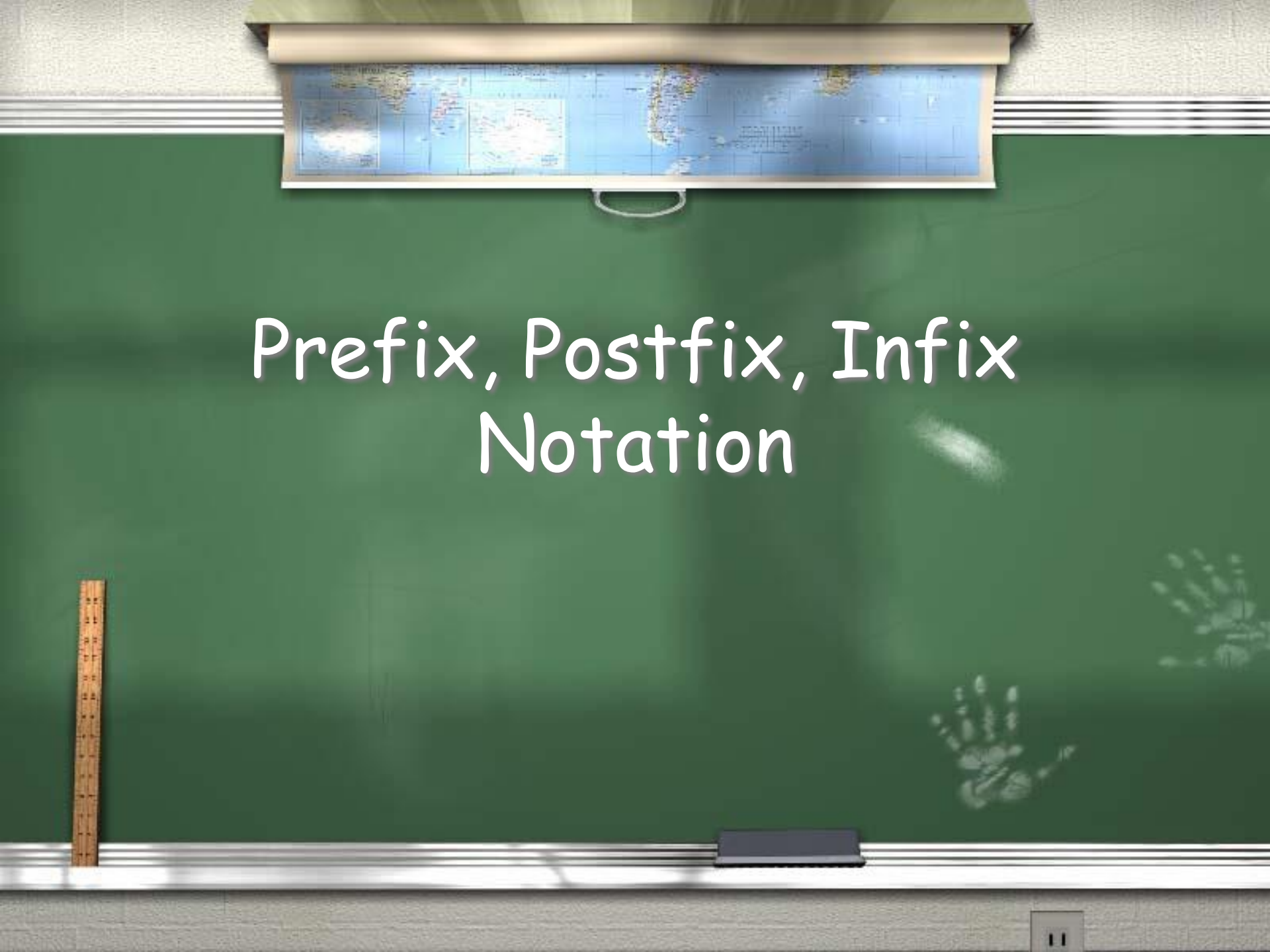
Prefix, Postfix, Infix
Notation

# Infix Notation

- To add A, B, we write

  A+B

- To multiply A, B, we write

  A*B

- The operators ('+' and '*') go in between the operands ('A' and 'B')
- This is "*Infix*" notation.

# Prefix Notation

- Instead of saying "A plus B", we could say "add A,B " and write

  + A B

- "Multiply A,B" would be written

  * A B

- This is *Prefix* notation.

# Postfix Notation

- Another alternative is to put the operators after the operands as in

A B +

and

A B *

- This is *Postfix* notation.

# Pre A In B Post

- The terms infix, prefix, and postfix tell us whether the operators go between, before, or after the operands.

# Parentheses

- Evaluate 2+3*5.
- + First:

  (2+3)*5 = 5*5 = 25
- * First:

  2+(3*5) = 2+15 = 17
- Infix notation requires Parentheses.

# What about Prefix Notation?

- + 2 * 3 5 =
  - = + 2 <u>* 3 5</u>
  - = <u>+ 2 15</u> = 17
- * + 2 3 5 =
  - = * <u>+ 2 3</u> 5
  - = <u>* 5 5</u> = 25
- No parentheses needed!

# Postfix Notation

- 2 3 5 * + =
  - = 2 3 5 * +
  - = 2 15 + = 17
- 2 3 + 5 * =
  - = 2 3 + 5 *
  - = 5 5 * = 25
- No parentheses needed here either!

# Conclusion:

- Infix is the only notation that requires parentheses in order to change the order in which the operations are done.