Scheme

CS 152

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1. Basic Arithmetic

+, -, *, and / represent addition, subtraction, multiplication, and division respectively.

1.1. Example(s)

```
( + 1 2 )
```

2. Other Arithmetic Operation

- quotient
- remainder
- modulo
- sqrt
- exp
- log
- trigonometry
  - sin
  - cos
  - tan
  - asin
  - acos
  - atan

3. Lists

3.1. Cons Cells

- Memory spaces which stores two addresses.
  - **car** The part storaing the address to 1
  - **cdr** The part storing the address to 2
- Made by funtion `cons`.

3.1.1. Lists

- Lists are beaded cons cells with the cr part of the last cons cell being `'()`
- `'()` is called the empty List

4. atoms

- Data structures that do not use cons cells
- Numbers, characters, strings, vectors, and `'()` are atom
- `'()` is an atom and a list

5. quotient

- A special form named `quote` is used to prevent tokens from evaluation
- symbol'

5.1. Special forms

6. Functions car and cdr

- If the value of `car` is a beaded cons cell, it returns the address of the first element of the list.

7. Function List

8. Defining Functions

8.1. Hello World

```
; Hello world as a variable
(define vhello "Hello World")
```

```
(cd "C:\\doc\\scheme")
(load "hello.scm")
```