Review of Number system, Sets and Functions

CIS008-2 Logic and Foundations of Mathematics

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Recap of Number Systems I lecture

Recap

- Reviewed the definition of:
  - Natural numbers $\mathbb{N}$
  - Integers $\mathbb{Z}$
  - Rational numbers $\mathbb{Q}$
  - Real numbers $\mathbb{R}$.
- Introduced Base systems.
- Showed how to change between different Bases without loss of generallity.
- Guided examples of pseudocoded change of Base.

Recap of Introduction to Set Operations lecture

Recap

- Reviewed the definition of set operations:
  - Union
  - Intersection
  - Compliment
  - Difference
- Universal set
- Disjoint set
- Proper subset

Recap of Introduction to Functions

Recap

- Definition of a function, domain, codomain and range.
- Arrow diagrams
- Modulus, floor, and ceiling
- Functions that are one-to-one, onto or a bijection
- Inverse functions
- Composition of functions

Assignment operator $x = y$ means to copy the value of y into x.

Arithmetic operators $+$, $-$, $*$ (for multiplication), and $/$ (for division).

Relational operators $==$ (equals), $\neg =$ (not equal), $<$, $>$, $\leq$, $\geq$.

Logical operators $\wedge$ (and), $\vee$ (or), and $\neg$ (not)

Return statement return x teminates a function and returns the value of x to the invoker of the function.

if (*condition*)
  action 1
else
  action 2

while (*condition*)
  action

for *var* = *init* to *limit*
  action

Show reserved words (e.g. if) in regular typeface and user chosen words in italics.

// will signify a comment.