Class Prep 3: 2.2.1 to 2.2.2

library(cmna)

# Chapter 2: Error Analysis

## Section 2.2.1: Binary Numbers

as.integer(2^31 - 2)

## [1] 2147483646

as.integer(2^31 - 1)

## [1] 2147483647

as.integer(2^31)

## Warning: NAs introduced by coercion to integer range

## [1] NA

-2147483646L

## [1] -2147483646

-2147483646L - 1L

## [1] -2147483647

-2147483646L - 2L

## Warning in -2147483646L - 2L: NAs produced by integer overflow

## [1] NA

-2147483646L

## [1] -2147483646

as.integer(0.5)

## [1] 0

as.integer(1.9)

## [1] 1

0xFACE

## [1] 64206

2^32

## [1] 4294967296

class(2^32)

## [1] "numeric"

## Section 2.2.2: Floating Point Numbers

2^31

## [1] 2147483648

2^40

## [1] 1.099512e+12

0/0

## [1] NaN

NaN == NaN

## [1] NA

sqrt(-1)

## Warning in sqrt(-1): NaNs produced

## [1] NaN

Inf - Inf

## [1] NaN

c(1, 2, 3, 4, NA, 5, 6)

## [1] 1 2 3 4 NA 5 6

matrix(c(1, 2, NA, 4, NA, 6, NA, 8, 9), 3)

## [,1] [,2] [,3]  
## [1,] 1 4 NA  
## [2,] 2 NA 8  
## [3,] NA 6 9

1/0

## [1] Inf

1/Inf

## [1] 0

Inf/Inf

## [1] NaN

Inf == Inf

## [1] TRUE

Inf == -Inf

## [1] FALSE

Inf > 100

## [1] TRUE

Inf < 100

## [1] FALSE

-Inf > 100

## [1] FALSE

1/(-0)

## [1] -Inf

-0

## [1] 0

1/-Inf

## [1] 0

1/sqrt(-0)

## [1] -Inf