NA Values in R

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I read an excellent post on R-Bloggers about understanding NA values in R. I'm just going to expand upon it slightly and summarize is a bit. The original article can be found here

NA Values as Numbers

```
NA^0
```

```
## [1] 1
```

```
NA^2
```

```
## [1] NA
```

```
0^0
```

```
## [1] 1
```

```
0^2
```

```
## [1] 0
```

Any positive or negative number raised to the 0 equals 1. Even 0 raised to the 0 equals 1. So NA can be thought of as a placeholder for some integer that we do not know. If you look in the example, NA^2 = NA because the value of (placeholder)^2 varies depending on what the placeholder is, but (placeholder)^0 = 1 regardless of what is in there.

NA Values as Logical Statements

```
FALSE || TRUE
```

```
## [1] TRUE
```

```
FALSE & TRUE
```

```
## [1] FALSE
```

"||" = or
"&" = and

- FALSE || True = True: Only one statement needs to be for the result to be true
- FALSE & TRUE = FALSE: Both statements need to be true for the result to be true

```
NA || TRUE
```

```
## [1] TRUE
```

```
NA || FALSE
```

```
## [1] NA
```

```
NA & TRUE
```

```
## [1] NA
```

```
NA & FALSE
```

```
## [1] FALSE
```

Remember that NA is a placeholder. It could equal any of the possible outcomes (TRUE and FALSE). So each statement has to work out for both possibilities.

- NA || TRUE = TRUE: Only one statement needs to be true and that is already satisfied
- NA || FALSE = NA: The result changes based on the value of NA. TRUE produces a true result and False produces a false result
- NA & TRUE = NA: The result changes based on the value of NA. TRUE produces a true result and False produces a false result
- NA & FALSE = FALSE: FALSE & FALSE = FALSE and TRUE & FALSE = FALSE. The same result is produced regardless of the value of NA.