

2.9: Math with Vectors

You can apply mathematical operations to the elements of a vector just as you would with a single number:

```
> my_vector <- c(4, 5, 6)
> my_vector_times_ten <- my_vector*10
> my_vector_times_ten
[1] 40 50 60
```

You can also apply mathematical operations on pairs of vectors. In this case, each matching element is used for the operation.

```
> my_first_vector <- c(1,2,3)
> my_second_vector <- c(10, 20, 20)
> my_first_vector + my_second_vector
[1] 11 22 23
```

We can also apply logical operations across vectors; again, this will return a vector with the operation applied to the pairs of values at each position.

```
> vector_a <- c(1,2,3)
> vector_b <- c(1,2,4)
> vector_a == vector_b
[1] TRUE TRUE FALSE
```

Most functions will work with vectors just as they would with a single number. For example, let's say we wanted to obtain the trigonometric sine for each of a set of values. We could create a vector and pass it to the `sin()` function, which will return as many sine values as there are input values:

```
> my_angle_values <- c(0, 1, 2)
> my_sin_values <- sin(my_angle_values)
> my_sin_values
[1] 0.00 0.84 0.91
k
```

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