



INTRODUCTION TO R

Vector Arithmetic

Vector Arithmetic

```
> my_apples <- 5
> my_oranges <- 6
> my_apples + my_oranges
[1] 11
```

`my_apples` is a vector!
`my_oranges` is a vector!

Computations are performed **element-wise**

```
> earnings <- c(50, 100, 30)
> earnings * 3
[1] 150 300 90
```

Vector Arithmetic

```
> earnings/10  
[1] 5 10 3  
  
> earnings - 20  
[1] 30 80 10  
  
> earnings + 100  
[1] 150 200 130  
  
> earnings^2  
[1] 2500 10000 900
```

Mathematics naturally extend!

Element-wise

```
> earnings <- c(50, 100, 30)
```

```
> expenses <- c(30, 40, 80)
```

```
> earnings - expenses
```

```
[1] 20 60 -50
```

```
> earnings + c(10, 20, 30)
```

```
[1] 60 120 60
```

```
> earnings * c(1, 2, 3)
```

```
[1] 50 200 90
```

```
> earnings / c(1, 2, 3)
```

```
[1] 50 50 10
```

**multiplication and division
are done element-wise!**

sum() and >

```
> earnings <- c(50, 100, 30)
> expenses <- c(30, 40, 80)

> bank <- earnings - expenses
> bank
[1] 20 60 -50

> sum(bank)
[1] 30

> earnings > expenses
[1] TRUE TRUE FALSE
```



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Let's practice!