20181019l MT105A 06 Vectors

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### Vectors

x = c(1,2,3); x

## [1] 1 2 3

### Transpose of vectors

t(x)

## [,1] [,2] [,3]  
## [1,] 1 2 3

### Multiplying by a number

7\*x

## [1] 7 14 21

### Sum of vectors

x = c(1,2,3)  
y = c(3,2,1)  
x + y

## [1] 4 4 4

### Inner product (dot) of vectors

sum(x\*y)

## [1] 10

### length of a vector

sqrt(sum(x\*x))

## [1] 3.741657

### 0 vector and 1 vector

rep(0,5)

## [1] 0 0 0 0 0

rep(1,5)

## [1] 1 1 1 1 1

### Orthogonal vector

Defined by v1 dot v2 = 0

v1 = c(-1,1); v2 = c(1,1)  
sum(v1\*v2)

## [1] 0