# Quiz #2: Solutions

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Create an R-script or an R-notebook which prints out the answers to the following problems. All of your work and calculations **must** be done in R.

# Arithmetic (1 point each)

### Problem 1.

Divide 792 by 11.

```
792/11
## [1] 72
```

#### Problem 2.

Find the square root of  $\pi$ 

```
sqrt(pi)
## [1] 1.772454
```

#### Problem 3.

Calculate  $e^2$ 

```
exp(2)
## [1] 7.389056
```

#### Problem 4.

Find the fourth root of 256.

```
(256)^(1/4)
## [1] 4
```

#### Problem 5.

Calculate the natural logarithm of 2.

```
log(2)
## [1] 0.6931472
```

# Variables and vectors

# Problem 6. (2 points)

Assign the value 3 to variable a and the value 7 to variable b; print out their product

```
a=3
b=7
a*b
## [1] 21
```

# Problem 7. (3 points)

Set the vector  $\mathbf{v}$  to be the numbers between -2 and 4 (inclusive); set the vector  $\mathbf{w}$  to be the first 7 natural numbers; what do you get when you multiply  $\mathbf{v}$  by  $\mathbf{w}$ ?

```
v=-2:4
w=1:7
v*w
## [1] -2 -2 0 4 10 18 28
```

# Loops

### Problem 8. (5 points)

Write and execute a chunk of code which calculates and prints out the sum of squares of the first n natural numbers for  $n = 1, 2, \dots, 25$ .

```
for(i in 1:25){
   print(sum((1:i)^2))
}
## [1] 1
## [1] 5
## [1] 14
## [1] 30
## [1] 55
## [1] 91
## [1] 140
## [1] 204
## [1] 285
## [1] 385
```

```
## [1] 506
## [1] 650
## [1] 1015
## [1] 1240
## [1] 1785
## [1] 2470
## [1] 2870
## [1] 3311
## [1] 3795
## [1] 4324
## [1] 4900
## [1] 5525
```