

HW4.R

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```
## Part 1
5+3

## [1] 8
5-3

## [1] 2
5*3

## [1] 15
5/3

## [1] 1.666667
## Part 2
x <- 3 * 4
x

## [1] 12
## Part 3
this_is_a_really_long_name <- 2.5
r_rocks <- 2 ^ 3
## rrocks
seq(1,10)

## [1] 1 2 3 4 5 6 7 8 9 10
help(seq)
seq(1,10, by=2)

## [1] 1 3 5 7 9
example(seq)

##
## seq> seq(0, 1, length.out = 11)
## [1] 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
##
## seq> seq(stats::rnorm(20)) # effectively 'along'
## [1] 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
##
## seq> seq(1, 9, by = 2)      # matches 'end'
## [1] 1 3 5 7 9
##
## seq> seq(1, 9, by = pi)     # stays below 'end'
```

```
## [1] 1.000000 4.141593 7.283185
##
## seq> seq(1, 6, by = 3)
## [1] 1 4
##
## seq> seq(1.575, 5.125, by = 0.05)
## [1] 1.575 1.625 1.675 1.725 1.775 1.825 1.875 1.925 1.975 2.025 2.075 2.125
## [13] 2.175 2.225 2.275 2.325 2.375 2.425 2.475 2.525 2.575 2.625 2.675 2.725
## [25] 2.775 2.825 2.875 2.925 2.975 3.025 3.075 3.125 3.175 3.225 3.275 3.325
## [37] 3.375 3.425 3.475 3.525 3.575 3.625 3.675 3.725 3.775 3.825 3.875 3.925
## [49] 3.975 4.025 4.075 4.125 4.175 4.225 4.275 4.325 4.375 4.425 4.475 4.525
## [61] 4.575 4.625 4.675 4.725 4.775 4.825 4.875 4.925 4.975 5.025 5.075 5.125
##
## seq> seq(17) # same as 1:17, or even better seq_len(17)
## [1] 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
```

```
date()
```

```
## [1] "Sun Jan 22 12:27:43 2023"
```

```
## part 5
help(log)
?log
help.search("cross tabulate")
??"cross tabulate"
example(log)
```

```
##
## log> log(exp(3))
## [1] 3
##
## log> log10(1e7) # = 7
## [1] 7
##
## log> x <- 10~-(1+2*1:9)
##
## log> cbind(x, log(1+x), log1p(x), exp(x)-1, expm1(x))
##           x
## [1,] 1e-03 9.995003e-04 9.995003e-04 1.000500e-03 1.000500e-03
## [2,] 1e-05 9.999950e-06 9.999950e-06 1.000005e-05 1.000005e-05
## [3,] 1e-07 1.000000e-07 1.000000e-07 1.000000e-07 1.000000e-07
## [4,] 1e-09 1.000000e-09 1.000000e-09 1.000000e-09 1.000000e-09
## [5,] 1e-11 1.000000e-11 1.000000e-11 1.000000e-11 1.000000e-11
## [6,] 1e-13 9.992007e-14 1.000000e-13 9.992007e-14 1.000000e-13
## [7,] 1e-15 1.110223e-15 1.000000e-15 1.110223e-15 1.000000e-15
## [8,] 1e-17 0.000000e+00 1.000000e-17 0.000000e+00 1.000000e-17
## [9,] 1e-19 0.000000e+00 1.000000e-19 0.000000e+00 1.000000e-19
```

```
## part 6
length(3.1)
```

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

```
length("I like food")
```

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

```

x <- c(56, 95.3, 0.4)
x

## [1] 56.0 95.3 0.4
length(x)

## [1] 3
y <- c(3.2, 1.1, 0.2)
y

## [1] 3.2 1.1 0.2
x+y

## [1] 59.2 96.4 0.6
x-y

## [1] 52.8 94.2 0.2
x/y

## [1] 17.50000 86.63636 2.00000
sqrt(x)

## [1] 7.4833148 9.7621719 0.6324555
round(sqrt(x), 3)

## [1] 7.483 9.762 0.632
log(x)/2 + 1

## [1] 3.0126758 3.2785149 0.5418546
x <- c(56, 95.3, 0.4)
x[2]

## [1] 95.3
x[1]

## [1] 56
x[4]

## [1] NA
x[3] <- 0.5
x

## [1] 56.0 95.3 0.5
## Part 9
sessionInfo()

## R version 4.2.2 (2022-10-31)
## Platform: aarch64-apple-darwin20 (64-bit)
## Running under: macOS Ventura 13.1
##
## Matrix products: default

```

```
## BLAS:   /Library/Frameworks/R.framework/Versions/4.2-arm64/Resources/lib/libRblas.0.dylib
## LAPACK: /Library/Frameworks/R.framework/Versions/4.2-arm64/Resources/lib/libRlapack.dylib
##
## locale:
## [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8
##
## attached base packages:
## [1] stats      graphics  grDevices  utils      datasets  methods   base
##
## loaded via a namespace (and not attached):
## [1] digest_0.6.31  lifecycle_1.0.3 magrittr_2.0.3  evaluate_0.20
## [5] highr_0.10     rlang_1.0.6     stringi_1.7.12  cli_3.6.0
## [9] vctrs_0.5.1    rmarkdown_2.19  tools_4.2.2     stringr_1.5.0
## [13] glue_1.6.2     xfun_0.36       yaml_2.3.6      fastmap_1.1.0
## [17] compiler_4.2.2 htmltools_0.5.4 knitr_1.41
```

```
x=1:50
```

```
plot(x, sin(x), typ="l", col="blue", lwd=3, xlab="x = 1:50")
```

