Exercise – Basics & Terminology

Answer the following questions with R code by creating (*and editing if you make a mistake*) an R script and iteratively running the code in RStudio.

1. Load the `FSA` library (*even though it is not required for this exercise*).

```
> library(FSA)
```

2. Use an expression to compute the CPE (number of fish per net) if three nets captured 87 fish.

```
> 87/3
[1] 29
```

3. Assign (and view) the result of an expression that calculates the CPE (number of fish per 300 m of gillnet per night) if 1400 m of gillnet fished for two nights captured 87 fish.

```
> ( res <- 87/1400/2*300 )
[1] 9.321
```

4. Create an expression that uses the result saved in the previous step to modify the CPE to be per 1000 m of gillnet per night (i.e., don't re-create the previous expression, simply modify by starting with the saved result.)

```
> res*1000/300
[1] 31.07
```

5. Enter the following observed catches into a vector called `ct` – 87, 54, 12, 98, 45, 5, 78.

```
> ct <- c(87,54,12,98,45,5,78)
```

6. Enter the following efforts (number of nets) into a vector called `ft` – 3, 3, 2, 5, 2, 2, 4.

```
> ft <- c(3,3,2,5,2,2,4)
```

7. Compute a vector called `cpe` that contains the CPE (number of fish per net) computed from the previously entered catch and effort data.

```
> ( cpe <- ct/ft )
[1] 29.0 18.0  6.0 19.6 22.5  2.5 19.5
```

8. Find the mean CPE.

```
> mean(cpe)
[1] 16.73
```

9. Use R code to find the third CPE.

```
> cpe[3]
[1] 6
```

10. Use R code to simultaneously find the third and fifth CPEs.

```
> cpe[c(3,5)]
[1]  6.0 22.5
```

11. Use R code to eliminate the seventh CPE (but retain the other six CPEs).

```
> cpe[-7]
[1] 29.0 18.0  6.0 19.6 22.5  2.5
```

12. Use R code to find the CPEs for ONLY the days when two nets were fished.

```
> cpe[ft==2]
[1]  6.0 22.5  2.5
```

13. Find the mean CPE for ONLY those days when three or more nets were fished.

```
> cpe.gt3 <- cpe[ft>=3]
> mean(cpe.gt3)
[1] 21.52
```

14. Save your R script, close RStudio, open RStudio, and re-run your script. There is nothing to show here. The point of this question is to demonstrate how you can completely re-create analyses by re-running your script.