STA 3180 Statistical Modelling: Simulation

Extra Practice Problems: Simulation

1. Problem: Generate a random sample of size 10 from a normal distribution with mean 0 and standard deviation 1.

Solution: To generate a random sample of size 10 from a normal distribution with mean 0 and standard deviation 1, we can use the rnorm() function in R. We can set the mean to 0 and the standard deviation to 1, and set the size to 10. The code would look like this:

```
x <- rnorm(10, mean = 0, sd = 1)
```

[CORRECT]

2. Problem: Generate a random sample of size 10 from a uniform distribution between 0 and 1.

Solution: To generate a random sample of size 10 from a uniform distribution between 0 and 1, we can use the runif() function in R. We can set the minimum to 0 and the maximum to 1, and set the size to 10. The code would look like this:

```
x <- runif(10, min = 0, max = 1)
```

[CORRECT]

3. Problem: Generate a random sample of size 10 from a Poisson distribution with rate parameter 2.

Solution: To generate a random sample of size 10 from a Poisson distribution with rate parameter 2, we can use the rpois() function in R. We can set the rate parameter to 2, and set the size to 10. The code would look like this:

```
x <- rpois(10, lambda = 2)
```

[CORRECT]

4. Problem: Generate a random sample of size 10 from a binomial distribution with probability of success 0.5.

Solution: To generate a random sample of size 10 from a binomial distribution with probability of success 0.5, we can use the rbinom() function in R. We can set the probability of success to 0.5, and set the size to 10. The code would look like this:

```
x <- rbinom(10, size = 1, prob = 0.5)
```

[CORRECT]