Question 1

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```
knitr::opts_chunk$set(echo = TRUE, include = TRUE)
```

Part A

```
skincancer = read.csv("skincancer.csv", header = TRUE)

for (i in 1:dim(skincancer)[1]){
  if (skincancer$city[i] == 'Dallas') {
    skincancer$city[i] = 1
  } else {
    skincancer$city[i] = 0
  }
}

model0 = glm(cases ~ city + offset(log(py1000)), family = "poisson", data = skincancer)
table = summary(model0)$coefficients
rownames(table) = c('Minneappolis (B0)', 'Dallas (B1)')
colnames(table) = c('Estimate', 'Std. Error', 'Z-value', 'p-value')
ci = exp(confint.default(model0))
table
```

```
##                     Estimate Std. Error   Z-value      p-value
## Minneappolis (B0) -0.1819986 0.04295368 -4.237091 2.264347e-05
## Dallas (B1)        0.7234984 0.05134963 14.089653 4.397140e-45
```

Part B

- β_0: the log rate of non-melanoma skin cancer for women in Minneapolis.

- β_1: the log rate ratio of non-melanoma skin cancer for women in Dallas vs. women of Minneapolis.

- e^{β_0}: The rate of non-melanoma skin cancer for women in Minneapolis is 0.8336025 (95% CI: [0.7662964, 0.9068203]) cases per 1000 person years.

- e^{β_1}: The rate of non-melanoma skin cancer for women in Dallas in cases per 1000 person years is 2.0616331 (95% CI: [1.8642429, 2.2799234]) times the rate of non-melanoma skin cancer for women of Minneapolis.