6621 Final

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library(purrr)  
library(tidyverse)

## -- Attaching packages --------------------------------------------------------------- tidyverse 1.2.1 --

## v ggplot2 3.2.1 v readr 1.3.1  
## v tibble 2.1.3 v dplyr 0.8.3  
## v tidyr 1.0.0 v stringr 1.4.0  
## v ggplot2 3.2.1 v forcats 0.4.0

## -- Conflicts ------------------------------------------------------------------ tidyverse\_conflicts() --  
## x dplyr::filter() masks stats::filter()  
## x dplyr::lag() masks stats::lag()

library(readr)  
PCI.6 <- read.csv("C:/Users/Goodgolden5/Desktop/BIOS 6621 SAQ-PL.csv") %>%  
 as\_tibble() %>%  
 na.omit() %>%  
 filter(Time == "Month.6") %>%  
 filter(SAQ.PL <= 100) %>%  
 filter(SAQ.PL >= 0)  
sd <- sd(`PCI.6`$`SAQ.PL`)  
sample <- power.t.test(delta=(8/sd), sig.level=0.05, power=0.8, alternative="two.sided")  
sample$n

## [1] 90.98781

delta <- 0.1  
alpha <- 0.05  
beta <- 0.2  
p2 <- 0.42  
p1 <- 0.51  
p <- (p1 +p2)/2  
n.pooled <- ( (qnorm(alpha/2) + qnorm(beta))^2 \* (p1\*(1-p1) + p2\*(1-p2)) ) / delta^2  
n.unpooled <- ( (qnorm(alpha/2) + qnorm(beta))^2 \* (p1\*(1-p1) + p2\*(1-p2)) ) / delta^2  
n.fleiss <- ( qnorm(alpha/2) \* sqrt(p1\*(1-p1)) + qnorm(beta) \* sqrt(p2\*(1-p2)) )^2 / delta^2  
n.fleiss.2 <- ( qnorm(alpha/2) \* sqrt(2\*p\*(1-p)) + qnorm(beta) \* sqrt(p1\*(1-p1) + p2\*(1-p2)) )^2 / delta^2  
c( n.pooled, n.unpooled, n.fleiss, n.fleiss.2 )

## [1] 387.3422 387.3422 194.6514 389.5647