```
#################
## Pregunta 1 ##
#################

## Bloque 1:
E1 = 0.20
E2 = 0.55
E3 = 0.25
E1*(1-0.35)*0.20/(E1*(1-0.35)*0.20 + E1*0.35*0.7)

## Bloque 2:
E1 = 0.20
E2 = 0.55
E3 = 0.25
E2*0.45*0.80/(E2*0.45*0.80 + E2*(1-0.45)*0.30)

## Bloque 3:
E1 = 0.20
E2 = 0.55
E3 = 0.25
E3*(1-0.65)*0.20/(E3*(1-0.65)*0.20 + E3*0.65*0.90)

## Bloque 4:
E1 = 0.20
E2 = 0.55
E3 = 0.25
E1*0.30*0.65/(E1*0.30*0.65 + E1*(1-0.30)*0.20)

#################
## Pregunta 2 ##
#################

## Bloque 1:
(18*qnorm(0.975)/5)^2/.35

## Bloque 2:
(18*qnorm(0.95)/2)^2/.65

## Bloque 3:
(15*qnorm(0.975)/3)^2/.55

## Bloque 4:
(16*qnorm(0.975)/4)^2/.35

#################
## Pregunta 3 ##
#################

## Bloque 1:
nu = 1/(30/10)
1-pexp(5, rate = nu)


## Bloque 2:
nu = 2/(30/20)
1-pgamma(4, shape = 2, rate = nu)

## Bloque 3:
```

```r
lambda = log(3)
zeta = sqrt(log(1+0.25^2))
1-plnorm(4, lambda, zeta)

## Bloque 4:
k = 16
nu = k/3
1-pgamma(4, k, nu)

#################
## Pregunta 4 ##
#################

## Bloque 1:
n = 120
p.hat = 32/n
p0 = 1/3

aux1 = TeachingDemos::z.test(p.hat, mu = p0, stdev = sqrt(p0*(1-p0)/n), alternative
= "less")
aux2 = prop.test(x = 32, n = n, alternative = "less", p = p0, correct = F)

Tabla = rbind(c(aux1$statistic, aux2$statistic),
c(aux1$p.value, aux2$p.value))
colnames(Tabla) = c("z.test", "prop.test")
rownames(Tabla) = c("statistic", "p-value")
Tabla ## Resp: NO

## Bloque 2:
n = 120
p.hat = 89/n
p0 = 2/3

aux1 = TeachingDemos::z.test(p.hat, mu = p0, stdev = sqrt(p0*(1-p0)/n), alternative
= "greater")
aux2 = prop.test(x = 89, n = n, alternative = "greater", p = p0, correct = F)

Tabla = rbind(c(aux1$statistic, aux2$statistic),
c(aux1$p.value, aux2$p.value))
colnames(Tabla) = c("z.test", "prop.test")
rownames(Tabla) = c("statistic", "p-value")
Tabla ## Resp: SI

## Bloque 3:
n = 120
p.hat = 88/n
p0 = 2/3

aux1 = TeachingDemos::z.test(p.hat, mu = p0, stdev = sqrt(p0*(1-p0)/n), alternative
= "greater")
aux2 = prop.test(x = 88, n = n, alternative = "greater", p = p0, correct = F)

Tabla = rbind(c(aux1$statistic, aux2$statistic),
c(aux1$p.value, aux2$p.value))
colnames(Tabla) = c("z.test", "prop.test")
rownames(Tabla) = c("statistic", "p-value")
Tabla ## Resp: NO
```

```r
## Bloque 4:
n = 120
p.hat = 72/n
p0 = 2/3

aux1 = TeachingDemos::z.test(p.hat, mu = p0, stdev = sqrt(p0*(1-p0)/n), alternative
= "less")
aux2 = prop.test(x = 72, n = n, alternative = "less", p = p0, correct = F)

Tabla = rbind(c(aux1$statistic, aux2$statistic),
c(aux1$p.value, aux2$p.value))
colnames(Tabla) = c("z.test", "prop.test")
rownames(Tabla) = c("statistic", "p-value")
Tabla ## Resp: NO

#################
## Pregunta 5 ##
#################

## Bloque 1:
q = 2
r = 2
mu.y = 0.5 * q / (q+r)
sigma.y = sqrt((q/(q+r))^2/12 + q*r*(1/12+1/4)/((q+r)^2*(q+r+1)))
sigma.y/mu.y

## Bloque 2:
mu.y = 4
sigma.y = sqrt(8+4)
sigma.y/mu.y

## Bloque 3:
mu.y = 4
sigma.y = sqrt(8 + 2*3*4)
sigma.y/mu.y

## Bloque 4:
mu.y = 2*gamma(1+1/0.5)
sigma.y = sqrt(2^2*(gamma(1+2/0.5)-gamma(1+1/0.5)^2)+ 2^2*gamma(1+2/0.5))
sigma.y/mu.y

#################
## Pregunta 6 ##
#################

## Bloque 1:
n = 60
beta1 = 14.74*7.224
Fanova = 7.224^2
R2 = 0.4736
r2 = 1-(n-1)*(1-R2)/(n-2)
d = 1.3140
pvalue = 1-pchisq(d, df = 4-1-0)
cbind(beta1, r2, Fanova, pvalue)

## Bloque 2:
n = 50
T0 = 113.76/14.54
```

```
r2 = 0.5512
R2 = 1-(n-2)*(1-r2)/(n-1)
Fanova = T0^2
d = 2.5672
pvalue = 1-pchisq(d, df = 4-1-0)
cbind(T0, R2, Fanova, pvalue)##SI

## Bloque 3:
n = 40
T0 = sqrt(40.74)
se = 98.02/T0
R2 = 0.5174
r2 = 1-(n-1)*(1-R2)/(n-2)
d = 4.682
pvalue = 1-pchisq(d, df = 4-1-0)
cbind(T0, se, r2, pvalue) ## SI

## Bloque 4:
n = 30
T0 = sqrt(19.56)
beta1 = 24.06*T0
R2 = 0.4113
r2 = 1-(n-1)*(1-R2)/(n-2)
d = 7.5582
pvalue = 1-pchisq(d, df = 4-1-0)
cbind(beta1, T0, r2, pvalue)
```