

Poisson

Carlos David Contreras Chacon

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Parte 1: Drive Thru

A

```
alfa = 3
beta = 1/12

p1 = pgamma(20/60, alfa, 1/beta)
p1

## [1] 0.7618967
```

B

```
alfa = 1

p2 = pgamma(10/3600, alfa, 1/beta) - pgamma(5/3600, alfa, 1/beta)
p2

## [1] 0.01625535
```

C

```
x = 3
lambda = 12 #personas por hora
t = 1/4 #de hora

p3 = ppois(x, lambda*(t))
p3

## [1] 0.6472319
```

D

```
alfa = 3
p4 = pgamma(10/3600, alfa, 1/beta) - pgamma(5/3600, alfa, 1/beta)
p4

## [1] 5.258533e-06
```

E

```
mu = alfa * beta
var = alfa*beta^2
cat("Promedio = ", mu, "\n")

## Promedio = 0.25

cat("Varianza = ", var)

## Varianza = 0.02083333
```

F

```
p6 = pgamma(mu+sqrt(var), alfa, 1/beta)
1 - p6

## [1] 0.1491102
```

Parte 2: Entre particulas

A

```
x = 30
lambda = 15 #particulas por minuto
t = 3 #unidad de tiempo

p2_1 = dpois(x, lambda*(t))
p2_1

## [1] 0.00426053
```

B

```
alfa = 1
beta = 1/15

p2_2 = pgamma(5/60, alfa, 1/beta)
p2_2

## [1] 0.7134952
```

C

```
p2_3 = qexp(0.5, 15)
p2_3

## [1] 0.04620981
```

D

```
alfa = 2
beta = 1/15

p2_4 = pgamma(5/60, alfa, 1/beta)
p2_4

## [1] 0.3553642
```

E

```
p2_5a = qgamma(.25, alfa, 1/beta)
p2_5b = qgamma(.75, alfa, 1/beta)
cat("Entre ", p2_5a, "y ", p2_5b)

## Entre 0.06408525 y 0.179509
```