

A3

A00829752

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1

1.

```
prob_20min <- pgamma(1/3, 3, 12)
print(prob_20min)
```

```
## [1] 0.7618967
```

2.

```
prob_5to10sec <- pexp(10/3600, 12) - pexp(5/3600, 12)
print(prob_5to10sec)
```

```
## [1] 0.01625535
```

3.

```
prob_15min <- ppois(3, 12/60 * 15)
print(prob_15min)
```

```
## [1] 0.6472319
```

4.

```
prob_5to10sec_3persons <- pgamma(10/3600, 3, 12) - pgamma(5/3600, 3, 12)
print(prob_5to10sec_3persons)
```

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

5.

```
media <- 3/12
print(paste("Media:", media))
```

```
## [1] "Media: 0.25"
```

6.

```
prob_exceder_desviacion <- 1 - pgamma(media + sqrt(3*(1/12)^2), 3, 12)
print(prob_exceder_desviacion)
```

```
## [1] 0.1491102
```

2

1.

```
prob_30_particulas <- dpois(30, 15 * 3)
cat("La probabilidad es:", prob_30_particulas, "\n")
```

```
## La probabilidad es: 0.00426053
```

2.

```
prob_5s <- pexp(5, 15/60)
cat("La probabilidad es:", prob_5s, "\n")
```

```
## La probabilidad es: 0.7134952
```

3.

```
mediana <- (-1/15)*log(0.5)
cat("La mediana es:", mediana, "\n")
```

```
## La mediana es: 0.04620981
```

4.

```
prob_5s <- pgamma(5/60, 2, 15)
cat("La probabilidad es:", prob_5s, "\n")
```

```
## La probabilidad es: 0.3553642
```

5.

```
quantiles <- qgamma(c(0.25, 0.75), 2, 15)
cat("El rango que contiene el 50% del tiempo central es:", quantiles, "\n")
```

```
## El rango que contiene el 50% del tiempo central es: 0.06408525 0.179509
```