Package ‘qccrs’

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Type Package

Title Quality Control Charts under Repetitive Sampling

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Description Functions to calculate Average Sample Numbers (ASN), Average Run Length (ARL1) and value of k, k1 and k2 for quality control charts under repetitive sampling as given in Aslam et al. (2014) (<DOI:10.7232/iems.2014.13.1.101>).

Depends R (>= 3.1)

Imports dplyr, magrittr, purrr, stats, tibble

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URL https://github.com/myaseen208/qccrs,
     https://myaseen208.github.io/qccrs/

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npcrs1

NP Control Charts under Repetitive Sampling with single positive integer.

Description

Calculates Average Sample Numbers (ASN), Average Run Length (ARL1) and value of k for NP control charts under repetitive sampling as given in Aslam et al.(2014)

Usage

## Default S3 method:
npcrs1(.n, .p0, .f, .ssize = NULL, .k = NULL, .kr = NULL)

Arguments

.n
Sample Size

.p0
probability that process is in control

.f
Size of the Shift

.com
Number of samples with replacement at each iteration

.k
Positive Constant

.kr
Random Positive Constant

Value

ARL0, ARL1 and K

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References

Examples

```r
library(magrittr)
npcrs1(
  .n = 60
  , .p0 = 0.10
  , .f = 0.10
  , .k = 2.6432
)

npcrs1(
  .n = 60
  , .p0 = 0.10
  , .f = 0.10
  , .ssize = 1000
  , .kr = 4
)
```

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**npcrs2**

*Attributes Control Charts under Repetitive Sampling with two positive integers*

**Description**
Calculates Average Sample Numbers (ASN), Average Run Length (ARL1) and value of k1 and k2 for attributes control charts under repetitive sampling as given in Aslam et al.(2014)

**Usage**

```r
npcrs2(.n, .p0, .f, .ssize = NULL, .k1 = NULL, .k2 = NULL,
  .k1r = NULL, .k2r = NULL)
```

```r
## Default S3 method:
npcrs2(.n, .p0, .f, .ssize = NULL, .k1 = NULL, .k2 = NULL,
  .k1r = NULL, .k2r = NULL)
```

**Arguments**

- **.n** Sample Size
- **.p0** probability that process is in control
Size of the Shift
Number of samples with replacement at each iteration
Fixed positive constant
Fixed positive constant
Random positive constant
Random postive constant

Value
ASN, ARL, K1 and K2

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References

Examples

```r
library(magrittr)
npcrs2(
  .n = 40,
  .p0 = 0.10,
  .f = 0.1,
  .ssize = 1000,
  .k1r = 4,
  .k2r = .95
)

npcrs2(
  .n = 40,
  .p0 = 0.10,
  .f = 0.1,
  .k1 = 3.13,
  .k2 = .731
)
```
The qccrs package provides functionalities to calculate Average Sample Numbers (ASN), Average Run Length (ARL1) and value of k, k1 and k2 for quality control charts under repetitive sampling as given in Aslam et al. (2014).

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References

Calculates the Average Sample Number and Average Run Length as given in Aslam et al. (2014)

Usage
xrs(.c, .n, .k1, .k2)

## Default S3 method:
xrs(.c, .n, .k1, .k2)

Arguments
.c Size of the Shift
.n Sample Size
.k1 Positive Integer
.k2 Positive Integer
Value

Average Sample Number (ASN) and Average Run Length (ARL1) for xbar control charts under repetitive sampling

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References


Examples

```r
library(magrittr)
library(purrr)

c(0.0, 0.1, 0.20, 0.3, 0.4, 0.5, 1.0, 1.5, 2, 3) %>%
  purrr::map(
    function(x)
      xrs(.c = x, .n = 10, .k1 = 2.9301, .k2 = 0.9825)
  )
```
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