

# Package ‘SinIW’

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**Type** Package

**Title** The SinIW Distribution

**Version** 0.2

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**Description** Density, distribution function, quantile function, random generation and survival function for the Sine Inverse Weibull Distribution as defined by SOUZA, L. New Trigonometric Class of Probabilistic Distributions. 219 p. Thesis (Doctorate in Biometry and Applied Statistics) - Department of Statistics and Information, Federal Rural University of Pernambuco, Recife, Pernambuco, 2015 (available at <<http://www.openthesis.org/documents/New-trigonometric-classes-probabilistic-distributions-602633.html>>) and BRITO, C. C. R. Method Distributions generator and Probability Distributions Classes. 241 p. Thesis (Doctorate in Biometry and Applied Statistics) - Department of Statistics and Information, Federal Rural University of Pernambuco, Recife, Pernambuco, 2014 (available upon request).

**Depends** R (>= 3.0.1)

**Imports** pracma, fdrtool

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**LazyData** TRUE

**URL** <https://github.com/TrigonometricDistribution>

**BugReports** <https://github.com/TrigonometricDistribution/SinIW/issues>

**RoxygenNote** 5.0.1

**NeedsCompilation** no

**Repository** CRAN

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dsiniw	<i>The density function of the SinInverseWeibull probability distribution.</i>
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**Description**

The density function of the SinInverseWeibull probability distribution.

**Usage**

```
dsiniw(x, alpha, theta)
```

**Arguments**

x	vector of quantiles.
alpha	Alpha parameter.
theta	Theta parameter.

**Value**

A vector with n observations of the SinInverseWeibull distribution.

**Examples**

```
dsiniw(0.5,1,1)
dsiniw(0.5,0.5,0.7)
```

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hsiniw	<i>The hazard rate function of the SinInverseWeibull probability distribution.</i>
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**Description**

The hazard rate function of the SinInverseWeibull probability distribution.

**Usage**

```
hsiniw(x, alpha, theta)
```

**Arguments**

x	vector of quantiles.
alpha	Alpha parameter.
theta	Theta parameter.

**Value**

A vector with n observations of the SinInverseWeibull distribution.

**Examples**

```
hsiniw(0.5,0.5,1.1)
hsiniw(0.5,1,1.9)
```

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psiniw	<i>The cumulative function of the SinInverseWeibull probability distribution.</i>
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**Description**

The cumulative function of the SinInverseWeibull probability distribution.

**Usage**

```
psiniw(q, alpha, theta, lower = TRUE, log.p = FALSE)
```

**Arguments**

q	vector of quantiles.
alpha	Alpha parameter.
theta	Theta parameter.
lower	Lower parameter.
log.p	Log.p parameter.

**Value**

A vector with n observations of the SinInverseWeibull distribution.

**Examples**

```
psiniw(0.5,1,1,TRUE,FALSE)
psiniw(0.5,0.5,0.7,TRUE,FALSE)
```

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qsiniw

*Te quantile function of the SinInverseWeibull probability distribution.*

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**Description**

Te quantile function of the SinInverseWeibull probability distribution.

**Usage**

```
qsiniw(p, alpha, theta, lower = TRUE, log.p = FALSE)
```

**Arguments**

p	vector of probabilities.
alpha	Alpha parameter.
theta	Theta parameter.
lower	Lower parameter.
log.p	Log.p parameter.

**Value**

A vector with n observations of the SinInverseWeibull distribution.

**Examples**

```
qsiniw(0.5,1,1,TRUE,FALSE)
qsiniw(0.5,1,0.1,TRUE,FALSE)
```

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rsiniw	<i>Generates random deviates from a SinInverseWeibull probability distribution.</i>
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**Description**

Generates random deviates from a SinInverseWeibull probability distribution.

**Usage**

```
rsiniw(n, alpha, theta)
```

**Arguments**

n	Number of observations to be generated.
alpha	Alpha parameter.
theta	Theta parameter.

**Value**

A vector with n observations of the SinInverseWeibull distribution.

**Examples**

```
rsiniw(1000,0.1,0.9)  
rsiniw(1000,0.2,0.8)
```

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ssiniw	<i>The survival function of the SinInverseWeibull probability distribution.</i>
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**Description**

The survival function of the SinInverseWeibull probability distribution.

**Usage**

```
ssiniw(x, alpha, theta)
```

**Arguments**

x	vector of quantiles.
alpha	Alpha parameter.
theta	Theta parameter.

**Value**

A vector with n observations of the SinInverseWeibull distribution.

**Examples**

```
ssiniw(0.1, 1, 1)  
ssiniw(0.1, 1, 0.1)
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