Package 'birk'

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Type Package

Title MA Birk functions

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Description This is a compilation of functions that I found useful to make. It currently includes a unit of measurement conversion function and a few simple arithmetic functions.

License GPL-2

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`birk-package` *MA Birk functions*

Description

This is a compilation of functions that I found useful to make. It currently includes a unit of measurement conversion function and a few simple arithmetic functions.

Details

Package:	birk
Type:	Package
Version:	1.2
Date:	2014-11-07
License:	GPL-2

Author(s)

Matthew A. Birk <matthewabirk@gmail.com>

`conv_unit` *Convert Units of Measurement*

Description

This function converts common units of measurement for a variety of dimensions. See conv_unit_options for all options.

Usage

```
conv_unit(x, from, to)
```

Arguments

`x`	the measurement value or vector of values in its originial units
`from`	the unit in which the measurement was made Acceleration: mm_per_sec2, cm_per_sec2, m_per_sec2, km_per_sec2, grav, inch_per_sec2, ft_per_sec2, mi_per_sec2 Angle: degree, radian, grad, arcmin, arcsec, turn Area: nm2, um2, mm2, cm2, m2, hectare, km2, inch2, ft2, yd2, acre, mi2, naut_mi2 Coordinate: dec_deg, deg_dec_min, deg_min_sec (see note) Duration: nsec, usec, msec, sec, min, hr, day, wk, mon, yr, dec, cen, mil Energy: J, erg, cal, Cal, Wsec, kWh, MWh, BTU Flow: ml_per_sec, ml_per_min, ml_per_hr, l_per_sec, l_per_min, l_per_hr, m3_per_sec, m3_per_min, m3_per_hr, gal_per_sec, gal_per_min, gal_per_hr, ft3_per_sec, ft3_per_min, ft3_per_hr Length: nm, um, mm, cm, dm, m, km, inch, ft, yd, mi, naut_mi, light_yr Mass: ug, mg, g, kg, metric_ton, oz, lb, short_ton, long_ton, stone Power: uW, mW, W, kW, MW, GW, erg_per_sec, cal_per_sec, cal_per_hr, Cal_per_sec, Cal_per_hr, BTU_per_sec, BTU_per_hr, hp Pressure: uatm, atm, Pa, hPa, kPa, torr, mmHg, inHg, mbar, bar, dbar, psi Speed: mm_per_sec, cm_per_sec, m_per_sec, km_per_sec, inch_per_sec, ft_per_sec, kph, mph, knot Temperature: C, F, K, R Volume: ml, dl, l, cm3, dm3, m3, us_tsp, us_tbsp, us_oz, us_cup, us_pint, us_quart, us_gal, inch3, ft3, imp_tsp, imp_tbsp, imp_oz, imp_pint, imp_quart, imp_gal
`to`	the unit to which the measurement is to be converted

Details

The conversion values have been defined based primarily from international weight and measurement authorities (e.g. General Conference on Weights and Measures, International Committee for Weights and Measures, etc.). While much effort was made to make conversions as accurate as possible, you should check the accuracy of conversions to ensure that conversions are precise enough for your applications.

Note

Duration: Years are defined as 365.25 days and months are defined as 1/12 a year.

Coordinate: values must be entered as a string with one space between subunits (e.g. 70° 33' 11" = "70 33 11")

Energy: cal is a thermochemical calorie (4.184 J) and Cal is 1000 cal (kcal or 4184 J)

Mass: All non-metric units are based on the avoirdupois system

Power: hp is mechanical horsepower, or 745.69 W

Author(s)

Matthew A. Birk <matthewabirk@gmail.com>>

See Also

conv_unit_options

Examples

```
conv_unit(2.54, cm, inch) # Result = 1 inch
conv_unit(seq(1, 10), kg, short_ton) # A vector of measurement values can be converted
conv_unit("33 1 1", deg_min_sec, dec_deg)
conv_unit(c("101 44.32","3 19.453"), deg_dec_min, deg_min_sec)
```

---

conv_unit_options *Unit of Measurement Conversion Options*

Description

This dataset shows what units of measurement can be converted with the function conv_unit.

Usage

```
conv_unit_options
```

Details

Duration: Years are defined as 365.25 days and months are defined as 1/12 a year.

Coordinate: values must be entered as a string with one space between subunits (e.g. 70° 33' 11" = "70 33 11")

Energy: cal is a thermochemical calorie (4.184 J) and Cal is 1000 cal (kcal or 4184 J)

Mass: All non-metric units are based on the avoirdupois system

Power: hp is mechanical horsepower, or 745.69 W

Source

The conversion values have been defined based primarily from international weight and measurement authorities (e.g. General Conference on Weights and Measures, International Committee for Weights and Measures, etc.). While much effort was made to make conversions as accurate as possible, you should check the accuracy of conversions to ensure that conversions are precise enough for your applications.

See Also

conv_unit

Examples

```
conv_unit_options
conv_unit_options['Pressure']
```

---

geom_mean *Geometric Mean*

Description

This function computes the geometric mean of a vector, x. It is a wrapper for exp(mean(log(x))).

Usage

```
geom_mean(x, add0.001 = FALSE, ignore_neg = FALSE, ...)
```

Arguments

x	a numeric vector or an R object which is coercible to one by as.vector(x, "numeric").
add0.001	Should a small constant (0.001) be added to avoid issues with zeroes?
ignore_neg	Should negative values be ignored to avoid NaNs?
...	further arguments passed to or from other methods.

Author(s)

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See Also

mean

Examples

```
geom_mean(1:10)
geom_mean(0:10)
geom_mean(0:10, add0.001 = TRUE)
geom_mean(-10:10, add0.001 = TRUE, ignore_neg = TRUE)
```

se *Standard Error*

Description

This function computes the standard error of the values in x. If na.rm is TRUE then missing values are removed before computation proceeds.

Usage

```
se(x, na.rm = FALSE)
```

Arguments

x	a numeric vector or an R object which is coercible to one by as.vector(x, "numeric").
na.rm	logical. Should missing values be removed?

Author(s)

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See Also

sd, var

Examples

```
se(1:10)
```

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