### Predefined Function Definitions

The [Syntax](Syntax.docx) entry for each function defined in this clause corresponds to a call to that function. The names in any [Syntax](Syntax.docx) entry typeset as in number and string-1, are [parameter](parameter.docx) names for that function, and are local to that function definition's description.

When the type of an argument passed to a function is incompatible with the type expected the error value #VALUE! is returned by that function.

The set of predefined functions is divided into the following functional categories:

|  |  |
| --- | --- |
| Category | [Formulas](Formulas.docx) |
| Cube | [CUBEKPIMEMBER](CUBEKPIMEMBER.docx) (§), [CUBEMEMBER](CUBEMEMBER.docx) (§), [CUBEMEMBERPROPERTY](CUBEMEMBERPROPERTY.docx) (§), [CUBERANKEDMEMBER](CUBERANKEDMEMBER.docx) (§), [CUBESET](CUBESET.docx) (§), [CUBESETCOUNT](CUBESETCOUNT.docx) (§), [CUBEVALUE](CUBEVALUE.docx) (§) |
| Database | [DAVERAGE](DAVERAGE.docx) (§), [DCOUNT](DCOUNT.docx) (§), [DCOUNTA](DCOUNTA.docx) (§), [DGET](DGET.docx) (§), [DMAX](DMAX.docx) (§), [DMIN](DMIN.docx) (§), [DPRODUCT](DPRODUCT.docx) (§), [DSTDEV](DSTDEV.docx) (§), [DSTDEVP](DSTDEVP.docx) (§), [DSUM](DSUM.docx) (§), [DVAR](DVAR.docx) (§), and [DVARP](DVARP.docx) (§). |
| Date and Time | [DATE](DATE.docx) (§), [DATEDIF](DATEDIF.docx) (§), [DATEVALUE](DATEVALUE.docx) (§), [DAY](DAY.docx) (§), [DAYS360](DAYS360.docx) (§), [EDATE](EDATE.docx) (§), [EOMONTH](EOMONTH.docx) (§), [HOUR](HOUR.docx) (§), [MINUTE](MINUTE.docx) (§), [MONTH](MONTH.docx) (§), [NETWORKDAYS](NETWORKDAYS.docx) (§), [NOW](NOW.docx) (§), [SECOND](SECOND.docx) (§), [TIME](TIME.docx) (§), [TIMEVALUE](TIMEVALUE.docx) (§), [TODAY](TODAY.docx) (§), [WEEKDAY](WEEKDAY.docx) (§), [WEEKNUM](WEEKNUM.docx) (§), [WORKDAY](WORKDAY.docx) (§), [YEAR](YEAR.docx) (§), and [YEARFRAC](YEARFRAC.docx) (§) |
| Engineering | [BESSELI](BESSELI.docx) (§), [BESSELJ](BESSELJ.docx) (§), [BESSELK](BESSELK.docx) (§), [BESSELY](BESSELY.docx) (§), [BIN2DEC](BIN2DEC.docx) (§), [BIN2HEX](BIN2HEX.docx) (§), [BIN2OCT](BIN2OCT.docx) (§), [COMPLEX](COMPLEX.docx) (§), [CONVERT](CONVERT.docx) (§), [DEC2BIN](DEC2BIN.docx) (§), [DEC2HEX](DEC2HEX.docx) (§), [DEC2OCT](DEC2OCT.docx) (§), [DELTA](DELTA.docx) (§), [ERF](ERF.docx) (§), [ERFC](ERFC.docx) (§), [GESTEP](GESTEP.docx) (§), [HEX2BIN](HEX2BIN.docx) (§), [HEX2DEC](HEX2DEC.docx) (§), [HEX2OCT](HEX2OCT.docx) (§), [IMABS](IMABS.docx) (§), [IMAGINARY](IMAGINARY.docx) (§), [IMARGUMENT](IMARGUMENT.docx) (§), [IMCONJUGATE](IMCONJUGATE.docx) (§), [IMCOS](IMCOS.docx) (§), [IMDIV](IMDIV.docx) (§), [IMEXP](IMEXP.docx) (§), [IMLN](IMLN.docx) (§), [IMLOG10](IMLOG10.docx) (§), [IMLOG2](IMLOG2.docx) (§), [IMPOWER](IMPOWER.docx) (§), [IMPRODUCT](IMPRODUCT.docx) (§), [IMREAL](IMREAL.docx) (§), [IMSIN](IMSIN.docx) (§), [IMSQRT](IMSQRT.docx) (§), [IMSUB](IMSUB.docx) (§), [IMSUM](IMSUM.docx) (§), [OCT2BIN](OCT2BIN.docx) (§), [OCT2DEC](OCT2DEC.docx) (§), and [OCT2HEX](OCT2HEX.docx) (§). |
| Financial | [ACCRINT](ACCRINT.docx) (§), [ACCRINTM](ACCRINTM.docx) (§), [AMORDEGRC](AMORDEGRC.docx) (§), [AMORLINC](AMORLINC.docx) (§), [COUPDAYBS](COUPDAYBS.docx) (§), [COUPDAYS](COUPDAYS.docx) (§), [COUPDAYSNC](COUPDAYSNC.docx) (§), [COUPNCD](COUPNCD.docx) (§), [COUPNUM](COUPNUM.docx) (§), [COUPPCD](COUPPCD.docx) (§), [CUMIPMT](CUMIPMT.docx) (§), [CUMPRINC](CUMPRINC.docx) (§), [DB](DB.docx) (§), [DDB](DDB.docx) (§), [DISC](DISC.docx) (§), [DOLLARDE](DOLLARDE.docx) (§), [DOLLARFR](DOLLARFR.docx) (§), [DURATION](DURATION.docx) (§), [EFFECT](EFFECT.docx) (§), [FV](FV.docx) (§), [FVSCHEDULE](FVSCHEDULE.docx) (§), [INTRATE](INTRATE.docx) (§), [IPMT](IPMT.docx) (§), [IRR](IRR.docx) (§), [ISPMT](ISPMT.docx) (§), [MDURATION](MDURATION.docx) (§), [MIRR](MIRR.docx) (§), [NOMINAL](NOMINAL.docx) (§), [NPER](NPER.docx) (§), [NPV](NPV.docx) (§), [ODDFPRICE](ODDFPRICE.docx) (§), [ODDFYIELD](ODDFYIELD.docx) (§), [ODDLPRICE](ODDLPRICE.docx) (§), [ODDLYIELD](ODDLYIELD.docx) (§), [PMT](PMT.docx) (§), [PPMT](PPMT.docx) (§), [PRICE](PRICE.docx) (§), [PRICEDISC](PRICEDISC.docx) (§), [PRICEMAT](PRICEMAT.docx) (§), [PV](PV.docx) (§), [RATE](RATE.docx) (§), [RECEIVED](RECEIVED.docx) (§), [SLN](SLN.docx) (§), [SYD](SYD.docx) (§), [TBILLEQ](TBILLEQ.docx) (§), [TBILLPRICE](TBILLPRICE.docx) (§), [TBILLYIELD](TBILLYIELD.docx) (§), [VDB](VDB.docx) (§), [XIRR](XIRR.docx) (§), [XNPV](XNPV.docx) (§), [YIELD](YIELD.docx) (§), [YIELDDISC](YIELDDISC.docx) (§), and [YIELDMAT](YIELDMAT.docx) (§). |
| Information | [CELL](CELL.docx) (§), ERROR.TYPE (§), [INFO](INFO.docx) (§), [ISBLANK](ISBLANK.docx) (§), [ISERR](ISERR.docx) (§), [ISERROR](ISERROR.docx) (§), [ISEVEN](ISEVEN.docx) (§), [ISLOGICAL](ISLOGICAL.docx) (§), [ISNA](ISNA.docx) (§), [ISNONTEXT](ISNONTEXT.docx) (§), [ISNUMBER](ISNUMBER.docx) (§), [ISODD](ISODD.docx) (§), [ISREF](ISREF.docx) (§), [ISTEXT](ISTEXT.docx) (§), [N](N.docx) (§), [NA](NA.docx) (§), and [TYPE](TYPE.docx) (§). |
| Logical | [AND](AND.docx) (§), [FALSE](FALSE.docx) (§), [IF](IF.docx) (§), [IFERROR](IFERROR.docx) (§), [NOT](NOT.docx) (§), [OR](OR.docx) (§), and [TRUE](TRUE.docx) (§). |
| Lookup and Reference | [ADDRESS](ADDRESS.docx) (§), [AREAS](AREAS.docx) (§), [CHOOSE](CHOOSE.docx) (§), [COLUMN](COLUMN.docx) (§), [COLUMNS](COLUMNS.docx) (§, [GETPIVOTDATA](GETPIVOTDATA.docx) (§), [HLOOKUP](HLOOKUP.docx) (§), [HYPERLINK](HYPERLINK.docx) (§), [INDEX](INDEX.docx) (§), [INDIRECT](INDIRECT.docx) (§), [LOOKUP](LOOKUP.docx) (§), [MATCH](MATCH.docx) (§), [OFFSET](OFFSET.docx) (§), [ROW](ROW.docx) (§), [ROWS](ROWS.docx) (§), [RTD](RTD.docx) (§), [TRANSPOSE](TRANSPOSE.docx) (§), and [VLOOKUP](VLOOKUP.docx) (§). |
| Math and Trig | [ABS](ABS.docx) (§), [ACOS](ACOS.docx) (§), [ACOSH](ACOSH.docx) (§), [ASIN](ASIN.docx) (§), [ASINH](ASINH.docx) (§), [ATAN](ATAN.docx) (§), [ATAN2](ATAN2.docx) (§), [ATANH](ATANH.docx) (§), [CEILING](CEILING.docx) (§), [COMBIN](COMBIN.docx) (§), [COS](COS.docx) (§), [COSH](COSH.docx) (§), [DEGREES](DEGREES.docx) (§), [EVEN](EVEN.docx) (§), [EXP](EXP.docx) (§), [FACT](FACT.docx) (§), [FACTDOUBLE](FACTDOUBLE.docx) (§), [FLOOR](FLOOR.docx) (§), [GCD](GCD.docx) (§), [INT](INT.docx) (§), [LCM](LCM.docx) (§), [LN](LN.docx) (§), [LOG](LOG.docx) (§), [LOG10](LOG10.docx) (§), [MDETERM](MDETERM.docx) (§), [MINVERSE](MINVERSE.docx) (§), [MMULT](MMULT.docx) (§), [MOD](MOD.docx) (§), [MROUND](MROUND.docx) (§), [MULTINOMIAL](MULTINOMIAL.docx) (§), [ODD](ODD.docx) (§), [PI](PI.docx) (§), [POWER](POWER.docx) (§), [PRODUCT](PRODUCT.docx) (§), [QUOTIENT](QUOTIENT.docx) (§), [RADIANS](RADIANS.docx) (§), [RAND](RAND.docx) (§), [RANDBETWEEN](RANDBETWEEN.docx) (§), [ROMAN](ROMAN.docx) (§), [ROUND](ROUND.docx) (§), [ROUNDDOWN](ROUNDDOWN.docx) (§), [ROUNDUP](ROUNDUP.docx) (§), [SERIESSUM](SERIESSUM.docx) (§), [SIGN](SIGN.docx) (§), [SIN](SIN.docx) (§), [SINH](SINH.docx) (§), [SQRT](SQRT.docx) (§), [SQRTPI](SQRTPI.docx) (§), [SUBTOTAL](SUBTOTAL.docx) (§), [SUM](SUM.docx) (§), [SUMIF](SUMIF.docx) (§), [SUMIFS](SUMIFS.docx) (§), [SUMPRODUCT](SUMPRODUCT.docx) (§), [SUMSQ](SUMSQ.docx) (§), [SUMX2MY2](SUMX2MY2.docx) (§), [SUMX2PY2](SUMX2PY2.docx) (§), [SUMXMY2](SUMXMY2.docx) (§), [TAN](TAN.docx) (§), [TANH](TANH.docx) (§), and [TRUNC](TRUNC.docx) (§). |
| Statistical | [AVEDEV](AVEDEV.docx) (§), [AVERAGE](AVERAGE.docx) (§), [AVERAGEA](AVERAGEA.docx) (§),[AVERAGEIF](AVERAGEIF.docx) (§), [AVERAGEIFS](AVERAGEIFS.docx) (§), [BETADIST](BETADIST.docx) (§), [BETAINV](BETAINV.docx) (§), [BINOMDIST](BINOMDIST.docx) (§), [CHIDIST](CHIDIST.docx) (§), [CHIINV](CHIINV.docx) (§), [CHITEST](CHITEST.docx) (§), [CONFIDENCE](CONFIDENCE.docx) (§), [CORREL](CORREL.docx) (§), [COUNT](COUNT.docx) (§), [COUNTA](COUNTA.docx) (§), [COUNTBLANK](COUNTBLANK.docx) (§), [COUNTIF](COUNTIF.docx) (§),[COUNTIFS](COUNTIFS.docx) (§), [COVAR](COVAR.docx) (§), [CRITBINOM](CRITBINOM.docx) (§), [DEVSQ](DEVSQ.docx) (§), [EXPONDIST](EXPONDIST.docx) (§), [FDIST](FDIST.docx) (§), [FINV](FINV.docx) (§), [FISHER](FISHER.docx) (§), [FISHERINV](FISHERINV.docx) (§), [FORECAST](FORECAST.docx) (§), [FREQUENCY](FREQUENCY.docx) (§), [FTEST](FTEST.docx) (§), [GAMMADIST](GAMMADIST.docx) (§), [GAMMAINV](GAMMAINV.docx) (§), [GAMMALN](GAMMALN.docx) (§), [GEOMEAN](GEOMEAN.docx) (§), [GROWTH](GROWTH.docx) (§), [HARMEAN](HARMEAN.docx) (§), [HYPGEOMDIST](HYPGEOMDIST.docx) (§), [INTERCEPT](INTERCEPT.docx) (§), [KURT](KURT.docx) (§), [LARGE](LARGE.docx) (§), [LINEST](LINEST.docx) (§), [LOGEST](LOGEST.docx) (§), [LOGINV](LOGINV.docx) (§), [LOGNORMDIST](LOGNORMDIST.docx) (§), [MAX](MAX.docx) (§), [MAXA](MAXA.docx) (§), [MEDIAN](MEDIAN.docx) (§), [MIN](MIN.docx) (§), [MINA](MINA.docx) (§), [MODE](MODE.docx) (§), [NEGBINOMDIST](NEGBINOMDIST.docx) (§), [NORMDIST](NORMDIST.docx) (§), [NORMINV](NORMINV.docx) (§), [NORMSDIST](NORMSDIST.docx) (§), [NORMSINV](NORMSINV.docx) (§), [PEARSON](PEARSON.docx) (§), [PERCENTILE](PERCENTILE.docx) (§), [PERCENTRANK](PERCENTRANK.docx) (§), [PERMUT](PERMUT.docx) (§), [POISSON](POISSON.docx) (§), [PROB](PROB.docx) (§), [QUARTILE](QUARTILE.docx) (§), [RANK](RANK.docx) (§), [RSQ](RSQ.docx) (§), [SKEW](SKEW.docx) (§), [SLOPE](SLOPE.docx) (§), [SMALL](SMALL.docx) (§), [STANDARDIZE](STANDARDIZE.docx) (§), [STDEV](STDEV.docx) (§), [STDEVA](STDEVA.docx) (§), [STDEVP](STDEVP.docx) (§), [STDEVPA](STDEVPA.docx) (§), [STEYX](STEYX.docx) (§), [TDIST](TDIST.docx) (§), [TINV](TINV.docx) (§), [TREND](TREND.docx) (§), [TRIMMEAN](TRIMMEAN.docx) (§), [TTEST](TTEST.docx) (§), [VAR](VAR.docx) (§), [VARA](VARA.docx) (§), [VARP](VARP.docx) (§), [VARPA](VARPA.docx) (§), [WEIBULL](WEIBULL.docx) (§), and [ZTEST](ZTEST.docx) (§). |
| Text and Data | [ASC](ASC.docx) (§), [BAHTTEXT](BAHTTEXT.docx) (§), [CHAR](CHAR.docx) (§), [CLEAN](CLEAN.docx) (§), [CODE](CODE.docx) (§), CONCATENATE (§), [DOLLAR](DOLLAR.docx) (§), [EXACT](EXACT.docx) (§), [FIND](FIND.docx) (§), [FINDB](FINDB.docx) (§), [FIXED](FIXED.docx) (§), [JIS](JIS.docx) (§), [LEFT](LEFT.docx) (§), [LEFTB](LEFTB.docx) (§), [LEN](LEN.docx) (§), [LENB](LENB.docx) (§), [LOWER](LOWER.docx) (§), [MID](MID.docx) (§), [MIDB](MIDB.docx) (§), [PHONETIC](PHONETIC.docx) (§), [PROPER](PROPER.docx) (§), [REPLACE](REPLACE.docx) (§), [REPLACEB](REPLACEB.docx) (§), [REPT](REPT.docx) (§), [RIGHT](RIGHT.docx) (§), [RIGHTB](RIGHTB.docx) (§), [SEARCH](SEARCH.docx) (§), [SEARCHB](SEARCHB.docx) (§), [SUBSTITUTE](SUBSTITUTE.docx) (§), [T](T.docx) (§), [TEXT](TEXT.docx) (§), [TRIM](TRIM.docx) (§), [UPPER](UPPER.docx) (§), and [VALUE](VALUE.docx) (§). |