# Essential Spreadsheet Formulas

## Matthew B. Courtney, Ed.D.
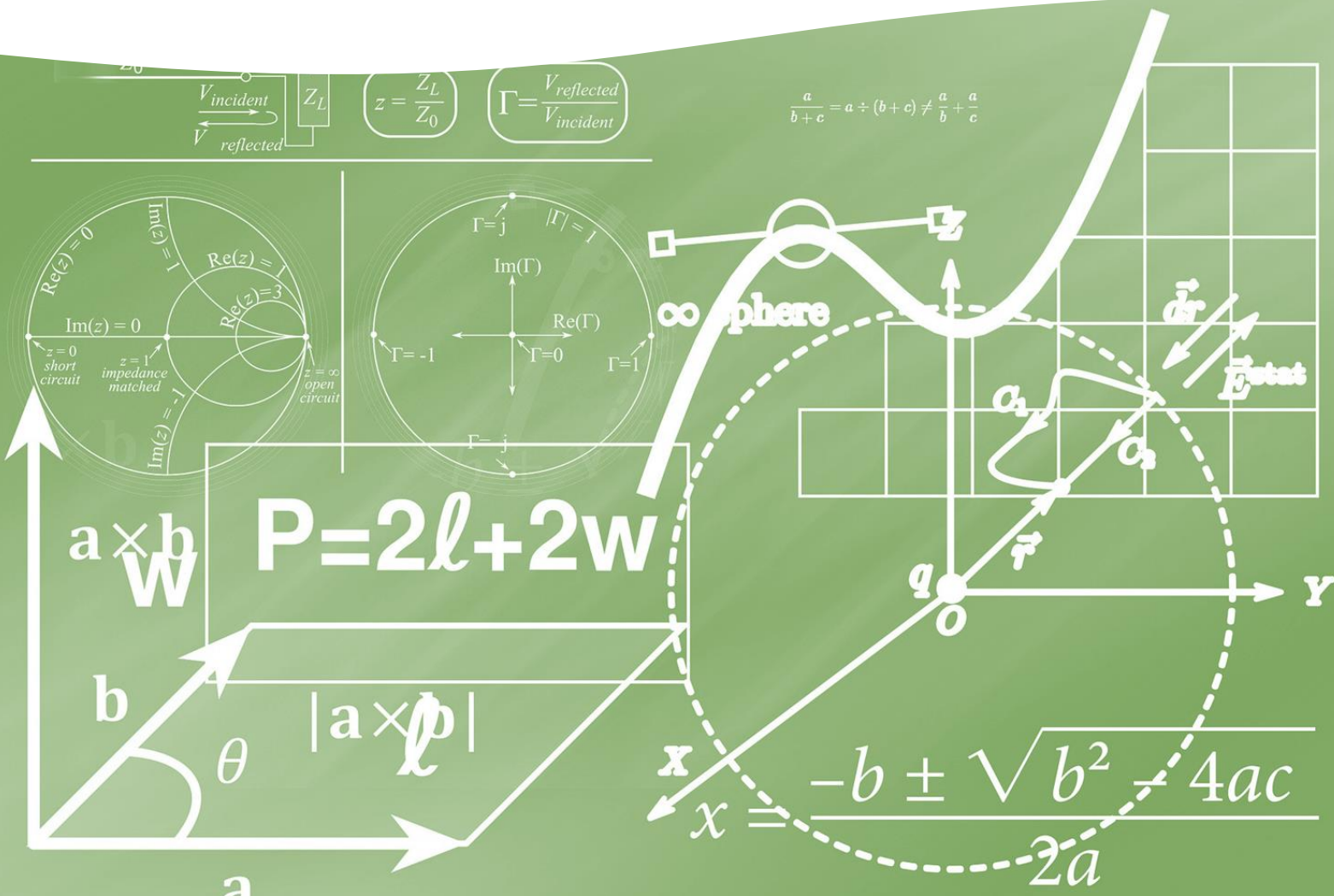
COURTNEY

Consulting LLC

## AVERAGE

| | |
|---|---|
| =AVERAGE(range) | |
| range | The collection of cells you wish to analyze. |

## AVERAGEIF

| | |
|---|---|
| =AVERAGEIF(range, criteria, average_range) | |
| range | The collection of cells that house the filtering criteria. |
| criteria | The filtering criteria that defines the cells you want to average. |
| average_range | The collection of cells you wish to analyze. |

## AVERAGEIFS

| | |
|---|---|
| =AVERAGEIFS(average_range, criteria_range1, criteria1, criteria_range2, criteria2, etc...) | |
| average_range | The collection of cells you wish to analyze. |
| criteria_range1 | The collection of cells that house your first filtering criteria. |
| criteria1 | The first filtering criteria that defines the cells you want to average. |
| criteria_range2 | The collection of cells that house your second filtering criteria. |
| criteria2 | The second filtering criteria that defines the cells you want to average. |

## CHOOSE

| | |
|---|---|
| =CHOOSE(index_num, value1, value2, value3 etc...) | |
| index_num | Which value you wish to display from a list. |
| value1 | The first value in your list. |
| value2 | The second value in your list. |
| value3 | The third value in your list. |

## CORREL

| | =CORREL(array1, array2) |
|---|---|
| array1 | The first range of cells. |
| array2 | The second range of cells. |

## COUNT

| | =COUNT(range) |
|---|---|
| range | The collection of cells you wish to analyze. |

## COUNTIF

| | =COUNTIF(range, criteria) |
|---|---|
| range | The collection of cells you wish to analyze. |
| criteria | The filtering criteria that defines what you want to count. |

## COUNTIFS

| | =COUNTIFS(range1, criteria1, range2, criteria2, etc...) |
|---|---|
| range1 | The first collection of cells you wish to analyze. |
| criteria1 | The filtering criteria that defines what you want to count in range1. |
| range2 | The second collection of cells you wish to analyze. |
| criteria2 | The filtering criteria that defines what you want to count in range2. |

## FORECAST.LINEAR

| | =FORECAST.LINEAR(x, known_y's, known_x's) |
|---|---|
| X | The data point that you want to predict. |
| known_y's | The range of values containing the dependent variable. |
| known_x's | The range of values containing the independent variable. |

## FORECAST.ETS

| | =FORECAST.ETS(target_date, timeline, seasonality, data_completion, aggregation) |
|---|---|
| target_date | The data point that you want to predict. |
| values | The historical values that you want to use to predict the next value. |
| timeline | The range of values that denote the timeline – usually dates. |
| seasonality | An optional value. Set to "1" if you want the software to predict seasonality automatically. Set to "0" if you want to create a linear prediction. |
| data_completion | An optional value. Set to "0" if you want the software to treat missing values as zero. Set to "1" if you want the software to treat missing values as missing. |
| aggregation | An optional value. Set to "0" if you want the software to average values recorded on the same date. |

## FREQUENCY

| | =FREQUENCY(data_array, data_bins) |
|---|---|
| data_array | The set of values that you want to count frequencies. |
| data_bins | The set of values into which you want to group the values in data_array. |

## IFERROR

| | =IFERROR(value, value_if_error) |
|---|---|
| value | The argument that is checked for an error. |
| value_if_error | The value you want the software to return if an error exists. |

## MAX

| | =MAX(range) |
|---|---|
| range | The collection of cells you wish to analyze. |

## MAXIFS

| =MAXIFS(max_range, criteria_range1, criteria1, criteria_range2, criteira2, etc...) | |
|---|---|
| max_range | The collection of cells you wish to analyze. |
| criteria_range1 | The collection of cells that houses criteria1. |
| criteria1 | The filtering criteria that defines what you want to apply from criteria_range1. |
| criteria_range2 | The collection of cells that houses criteria2. |
| criteria2 | The filtering criteria that defines what you want to analyze from criteria_range2. |

## MEDIAN

| =MEDIAN(range) | |
|---|---|
| range | The collection of cells you wish to analyze. |

## MIN

| =MIN(range) | |
|---|---|
| range | The collection of cells you wish to analyze. |

## MINIFS

| =MINIFS(min_range, criteria_range1, criteria1, criteria_range2, criteira2, etc...) | |
|---|---|
| min_range | The collection of cells you wish to analyze. |
| criteria_range1 | The collection of cells that houses criteria1. |
| criteria1 | The filtering criteria that defines what you want to apply from criteria_range1. |
| criteria_range2 | The collection of cells that houses criteria2. |
| criteria2 | The filtering criteria that defines what you want to analyze from criteria_range2. |

## MODE

| | |
|---|---|
| | =MODE(range) |
| range | The collection of cells you wish to analyze. |

## MODE.MULTI

| | |
|---|---|
| | =MODE.MULTI(range) |
| range | The collection of cells you wish to analyze. |

## MODE.SGNL

| | |
|---|---|
| | =MODE.SGNL(range) |
| range | The collection of cells you wish to analyze. |

## NORM.DIST

| | |
|---|---|
| | =NORM.DIST(x, mean, standard_dev, cumulative) |
| x | The value that you want to analyze. |
| mean | The mean, or average, of the distribution. |
| standard_dev | The standard deviation of the distribution. |
| cumulative | Set as "TRUE" if you want to see the cumulative distribution. Set as "FALSE" if you want to see the probability density. |

## PEARSON

| | |
|---|---|
| | =PEARSON(array1, array2) |
| array1 | The first range of cells. |
| array2 | The second range of cells. |

## PERCENTILE.EXC

| | |
|---|---|
| | =PERCENTILE.EXC(array, k) |
| array | The collection of cells you wish to analyze. |
| k | The range of data that defines relative standing. |

## PERCENTILE.INC

| | |
|---|---|
| | =PERCENTILE.INC(array, k) |
| array | The collection of cells you wish to analyze. |
| k | The percentile value in the range 0..1, inclusive. |

## QUARTILE.EXC

| | |
|---|---|
| | =QUARTILE.EXC(array, quart) |
| array | The collection of cells you wish to analyze. |
| quart | Indicates which quartile to return. |

## QUARTILE.INC

| | |
|---|---|
| | =QUARTILE.INC(array, quart) |
| array | The collection of cells you wish to analyze. |
| quart | Indicates which quartile to return. |

## RANDBETWEEN

| | |
|---|---|
| | =RANDBETWEEN(value1, value2) |
| value1 | The lower value in your desired range. |
| value2 | The upper value in your desired range. |

| SQRT | |
|---|---|
| =SQRT(number) | |
| number | The number for which you want to calculate the square root. |

| STDEV.P | |
|---|---|
| =STDEV.P(range) | |
| range | The collection of cells you wish to analyze. |

| STDEV.S | |
|---|---|
| =STDEV.S(range) | |
| range | The collection of cells you wish to analyze. |

| SUM | |
|---|---|
| =SUM(range) | |
| range | The collection of cells you wish to analyze. |

| SUMIF | |
|---|---|
| =SUMIF(range, criteria, sum_range) | |
| range | The collection of cells that houses criteria. |
| Criteria | The filtering criteria that defines what you want to apply from range. |
| sum_range | The collection of cells you wish to analyze. |

## SUMIFS

| | |
|---|---|
| =SUMIFS(sum_range, criteria_range1, criteria1, criteria_range2, criteira2, etc...) | |
| sum_range | The collection of cells you wish to analyze. |
| criteria_range1 | The collection of cells that houses criteria1. |
| criteria1 | The filtering criteria that defines what you want to apply from criteria_range1. |
| criteria_range2 | The collection of cells that houses criteria2. |
| criteria2 | The filtering criteria that defines what you want to analyze from criteria_range2. |

## T.TEST

| | |
|---|---|
| =T.TEST(array1, array2, tails, type) | |
| array1 | The first collection of cells you wish to analyze. |
| array2 | The second collection of cells you wish to analyze. |
| tails | Set to "1" if the t-test uses the one-tailed distribution. Set to "2" if the t-test uses the two-tailed distribution. |
| type | Set to "1" if the t-test if you want to calculate a paired-sample t-test. Set to "2" if you want to calculate a two-sample with equal variance t-test. Set to "3" if you want to calculate a two-sample with unequal variance t-test. |

## VLOOKUP

| | |
|---|---|
| =VLOOKUP(lookup_value, table_array, col_index_num, range_lookup) | |
| lookup_value | The unique identifier you want to search for. |
| table_array | The table where the matching information is housed. |
| col_index_num | The column on the table_array where the data can be found. |
| range_lookup | Set to "TRUE" if the first column in the table is sorted numerically or alphabetically and you want the closest value. Set to "FALSE" if you want to match the exact lookup_value. |
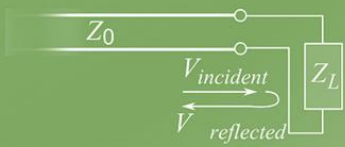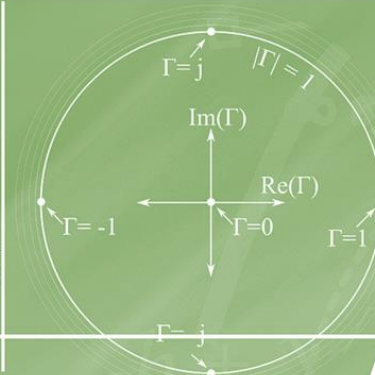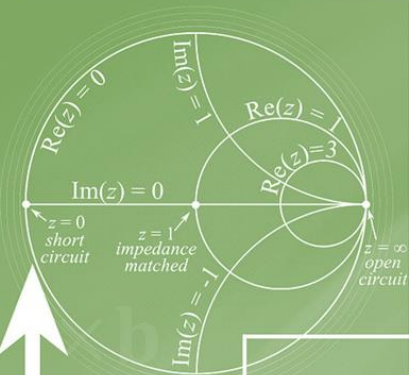
For more information about how you can use
data and research to drive continuous improvement
in your school or district, please visit:

www.matthewbcourtney.com