#### GROWTH

[Syntax](Syntax.docx):

GROWTH ( known-ys [ , [ known-xs ] [ , [ new-xs ] [ , const-flag ] ] )

Description: Computes predicted exponential growth by using existing data. GROWTH can also fit an exponential curve to existing x-values and y-values.

Arguments:

|  |  |  |
| --- | --- | --- |
| Name | Type | Description |
| known-ys | array | Set of y-values already known in the relationship y=b\*mx. If the array known-ys is a single column, then each column of known-xs is interpreted as a separate variable. If the array known-ys is a single [row](row.docx), then each [row](row.docx) of known-xs is interpreted as a separate variable. |
| known-xs | array | Set of x-values that might already be know in the relationship y=b\*mx. The array known-xs can include one or more [sets](sets.docx) of variables. If only one variable is used, known-ys and known-xs can be ranges of any shape, as long as they have equal dimensions. If more than one variable is used, known-ys must be a vector (that is, a known-ys with a height of one [row](row.docx) or a width of one column). If known-xs is omitted, it is assumed to be the array {1,2,3,...} that is the same size as known-ys. |
| new-xs | array | A set of new x-values for which GROWTH is to return corresponding y-values. new-xs shall include a column (or row) for each independent variable, just as known-xs does. So, if known-ys is in a single column, known-xs and new-xs shall have the same number of columns. If known-ys is in a single [row](row.docx), known-xs and new-xs shall have the same number of rows. If new-xs are omitted, it is assumed to be the array {1,2,3,...} that is the same size as known-ys. |
| const-flag | logical | Specifies whether to force the constant b to equal 1. If [TRUE](TRUE.docx) or omitted, [b](b.docx) is calculated normally. If [FALSE](FALSE.docx), [b](b.docx) is set equal to 1 and the m-values are adjusted so that y= [m](m.docx)x. |

Return Type and Value: array – The y-values for a series of new x-values.

However, if any of the numbers in known-ys are zero or negative, #NUM! is returned.

[Example: Given the following data:

|  |  |  |  |
| --- | --- | --- | --- |
|  | A | B | C |
| 1 | Month | Units | Formula (corresponding units) |
| 2 | 11 | 33,100 | 32618.20377 |
| 3 | 12 | 47,300 | 47729.42261 |
| 4 | 13 | 69,000 | 69841.30086 |
| 5 | 14 | 102,000 | 102197.0734 |
| 6 | 15 | 150,000 | 149542.4867 |
| 7 | 16 | 220,000 | 218821.8762 |
| 8 | Month | Formula (Predicted Units) |  |
| 9 | 17 | 320,196.72 |  |
| 10 | 18 | 468,536.05 |  |

When GROWTH(A2:B4,A6:B8) is array-entered into cells C2:C7, those cells take on the results shown.  
When GROWTH(A2:B4,A6:B8,A9:A10) is array-entered into cells B9:B10, those cells take on the results shown.  
  
end example]