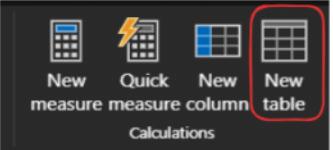


Advanced DAX Functions - P3

**ADD COLUMNS**

**Table**



**Column Header**

```
H ADDCOLUMNS(Table, Name1,
Expression1, ...)
```

Returns a table with new columns specified by the DAX expressions.

**VehicleOrder**

**Formula to create a new column**

```
2 ADDCOLUMNS(
```

▼ VehicleOrders

- CITY
- CONTACTFIRSTNAME
- CONTACTLASTNAME
- COUNTRY
- DEALSIZE
- Delay in Delivery
- DELIVERYDATETIME
- New Order Type
- Order Type
- ORDERDATETIME
- ORDERLINENUMBER
- ORDERNUMBER
- POSTALCODE
- PRICEEACH
- PRODUCTLINE
- QUANTITYORDERED
- STATE
- STATUS
- Target Delivery Date
- TERRITORY

Add Column Example =

ADDCOLUMNS(

```
ADDCOLUMNS(Table, Name1,
Expression1, [Name2],
[Expression2], ...)
```

Returns a table with new columns specified by the DAX expressions.

s[QUANTITYORDERED] \* VehicleOrders[PRIC

unt for the function is 3.

1 Add Column Example =

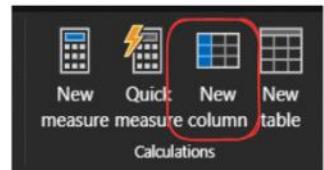
```
2 ADDCOLUMNS(
    VehicleOrders,
    "Order Value", VehicleOrders[QUANTITYORDERED] * VehicleOrders[PRICEEACH],
    "Order Year", YEAR(VehicleOrders[ORDERDATETIME]),
    "Order Month", FORMAT(VehicleOrders[ORDERDATETIME], "MMMM")
)
```

RITORY	CONTACTLASTNAME	CONTACTFIRSTNAME	DEALSIZE	Order Type	New Order Type	Target Delivery Date	Delay in Delivery	Order Value	Order Year	Order Month
A	Freyre	Diego	Medium	Average Order	Average Order	15-10-2014 00:00:00	24	₹ 3,400	2014	October
A	Freyre	Diego	Medium	Average Order	Average Order	16-08-2016 00:00:00	0	₹ 4,200	2016	August
A	Freyre	Diego	Medium	Average Order	Average Order	30-08-2014 00:00:00	24	₹ 3,900	2014	August
A	Freyre	Diego	Medium	Average Order	Average Order	19-06-2012 00:00:00	-24	₹ 4,100	2012	June
A	Freyre	Diego	Medium	Average Order	Average Order	17-05-2014 00:00:00	24	₹ 4,600	2014	May
A	Freyre	Diego	Medium	Average Order	Average Order	14-03-2014 00:00:00	24	₹ 4,700	2014	March
A	Freyre	Diego	Medium	Average Order	Average Order	09-05-2014 00:00:00	0	₹ 3,300	2014	May
A	Freyre	Diego	Medium	Average Order	Average Order	11-05-2016 00:00:00	48	₹ 2,900	2016	May
A	Freyre	Diego	Medium	Average Order	Average Order	04-06-2012 00:00:00	-24	₹ 3,600	2012	June
A	Freyre	Diego	Medium	Average Order	Average Order	15-09-2013 00:00:00	0	₹ 4,000	2013	September
A	Freyre	Diego	Medium	Average Order	Average Order	26-05-2013 00:00:00	0	₹ 3,800	2013	May
A	Freyre	Diego	Medium	Average Order	Average Order	30-03-2013 00:00:00	48	₹ 3,900	2013	March
A	Freyre	Diego	Medium	Average Order	Average Order	14-09-2012 00:00:00	-24	₹ 4,100	2012	September
A	Freyre	Diego	Medium	Average Order	Average Order	15-09-2013 00:00:00	24	₹ 4,000	2013	September
A	Freyre	Diego	Medium	Average Order	Average Order	23-10-2013 00:00:00	0	₹ 4,100	2013	October

Var & Return

Use when to create a new column  
[Calculated Column]

Motorcycle : 10%  
Classic-Cars : 15%  
Other-Products : 20%



Create a new column name 'Discount Price'  
based on different ProductLine.

PRICEEACH	ORDERLINENUMBER	ORDERDATETIME	DELIVERYDATETIME	STATUS	PRODUCTLINE	DiscountPrice
\$100.00	8	19-05-2014 23:07:00	21-05-2014 11:19:59	Shipped	Classic Cars	
\$100.00	11	25-11-2014 01:04:00	25-11-2014 07:56:06	Shipped	Classic Cars	
\$100.00	1	13-10-2014 00:33:00	14-10-2014 15:46:41	Shipped	Classic Cars	
\$100.00	12	14-08-2016 23:02:00	16-08-2016 17:27:35	Shipped	Classic Cars	
\$100.00	16	28-08-2014 00:16:00	29-08-2014 15:53:17	Shipped	Classic Cars	
\$100.00	9	17-06-2012 23:51:00	20-06-2012 23:46:07	Shipped	Trucks and Buses	
\$100.00	5	15-05-2014 23:47:00	16-05-2014 09:08:01	Shipped	Trucks and Buses	
\$100.00	5	26-09-2013 23:42:00	27-09-2013 02:26:05	Shipped	Trucks and Buses	
\$100.00	5	12-03-2014 00:54:00	13-03-2014 17:57:38	Shipped	Classic Cars	
\$100.00	15	07-05-2014 01:19:00	09-05-2014 18:31:03	Shipped	Classic Cars	
\$100.00	10	09-05-2016 00:47:00	09-05-2016 02:47:22	Shipped	Classic Cars	
\$100.00	2	02-06-2012 23:47:00	05-06-2012 04:30:35	Shipped	Vintage Cars	
\$100.00	7	13-09-2013 23:41:00	15-09-2013 22:52:02	Shipped	Vintage Cars	
\$100.00	6	24-05-2013 00:33:00	26-05-2013 02:35:03	Shipped	Classic Cars	
\$100.00	2	28-03-2013 01:26:00	28-03-2013 14:00:36	Shipped	Vintage Cars	
\$100.00	9	12-09-2012 01:12:00	15-09-2012 00:02:15	Shipped	Classic Cars	
\$100.00	8	04-11-2013 00:58:00	04-11-2013 17:34:58	Shipped	Classic Cars	
\$100.00	4	13-09-2013 00:39:00	14-09-2013 10:38:05	Shipped	Classic Cars	
\$100.00	4	21-10-2013 00:56:00	23-10-2013 16:51:09	Shipped	Classic Cars	
\$100.00	12	12-09-2016 22:55:00	15-09-2016 06:48:36	Shipped	Trucks and Buses	

```

1 Discounted Price =
2 VAR BasePrice = VehicleOrders[PRICEEACH] 100
3 VAR Discount = 0.85
4 IF(VehicleOrders[PRODUCTLINE] = "Motorcycles", 0.90, 20% discount)
5 IF(VehicleOrders[PRODUCTLINE] = "Classic Cars" , 0.85, 0.80)
6 Return BasePrice * Discount

```

COUNTRY	TERRITORY	CONTACTLASTNAME	CONTACTFIRSTNAME	DEALSIZE	Order Type	New Order Type	Target Delivery Date	Delay in Delivery	Discounted Price
ain	EMEA	Freyre	Diego	Medium	Regular Order	Regular Order	21-05-2014	0	\$85
ain	EMEA	Freyre	Diego	Medium	Regular Order	Regular Order	27-11-2014	48	\$85
ain	EMEA	Freyre	Diego	Medium	Average Order	Average Order	15-10-2014	24	\$85
ain	EMEA	Freyre	Diego	Medium	Average Order	Average Order	16-08-2016	0	\$85
ain	EMEA	Freyre	Diego	Medium	Average Order	Average Order	30-08-2014	24	\$85
ain	EMEA	Freyre	Diego	Medium	Average Order	Average Order	19-06-2012	-24	\$80
ain	EMEA	Freyre	Diego	Medium	Average Order	Average Order	17-05-2014	24	\$80
ain	EMEA	Freyre	Diego	Medium	Bulk Order	Bulk Order	28-09-2013	24	\$80
ain	EMEA	Freyre	Diego	Medium	Average Order	Average Order	14-03-2014	24	\$85
ain	EMEA	Freyre	Diego	Medium	Average Order	Average Order	09-05-2014	0	\$85

$$1 = 100\% - 15\% = 85\% == 0.85$$

```

1 Discounted Price =
2 VAR BasePrice = VehicleOrders[PRICEEACH]
3 VAR Discount =
4 SWITCH(
5   TRUE(),
6     VehicleOrders[PRODUCTLINE] = "Motorcycles" , 0.90,
7     VehicleOrders[PRODUCTLINE] = "Classic Cars" , 0.85,
8     0.80
9   )
10 Return BasePrice * Discount

```

All % of contribution

ALL(Table or Column Name)

it will remove the filters

**Measures**

**CALCULATE(Expression, [Filter1], [Filter2], ...)**

Evaluates an expression in a context modified by filters.

productLine = Vintage Car	= 20	100	20%
Classic Car	= 35	100	35%
Motorcycles	= 10	100	
Planes	= 25	100	
Train	= 05	100	
Ship	= 05	100	
		100	

$$10+25+10+15+20+30+40+50 = 200$$

$$10/200 = 5\%$$

PRODUCTLINE	Revenue
Classic Cars	\$29,68,546.40
Motorcycles	\$9,71,086.29
Planes	\$8,77,942.21
Ships	\$6,77,940.40
Trains	\$2,03,804.26
Trucks and Buses	\$9,47,355.18
Vintage Cars	\$16,44,212.05
<b>Total</b>	<b>\$82,90,886.79</b>

Dimension

Product  
[Unique]

Filter Context

Revenue

Fact Table

The screenshot shows the Power BI ribbon with the 'Calculations' tab selected. Below the ribbon, there are five icons: 'New visual calculation', 'New measure', 'Quick measure', 'New measure column', and 'New table'. A tooltip for 'New measure' says 'Measure Table'. To the right, a 'Measure Table' dropdown menu is open, listing various measures: 'Classic Cars in...', 'Large Deal Siz...', 'Medium Deal ...', 'Quantity Sold', 'Revenue' (which is checked), 'Small Deal Siz...', 'Total Orders', 'Value', and 'Vintage Cars ...'.

The screenshot shows the Power BI DAX editor. It displays two examples of the CALCULATE function:

- The first example is 'CALCULATE(Expression, [Filter1], ...)'. A callout arrow points from this example to the text 'All -> to remove filter' below it.
- The second example is 'CALCULATE([Revenue], All)'.

A tooltip for the 'All' parameter in the second example says 'Evaluates an expression in a context modified by filters.'

All -> to remove filter

```
ALL([TableNameOrColumnName],
[ColumnName1], ...)
```

The screenshot shows the Power BI Data Editor interface. At the top, there are settings for 'Name' (All Revenue), 'Home table' (Measure Table), 'Format' (Currency), and 'Structure'. The formula bar displays:

```
1 All Revenue =
CALCULATE(
    [Revenue],
    ALL(VehicleOrders))
```

PRODUCTLINE	Revenue	All Revenue	% of Contribution
Classic Cars	\$29,68,546.40	\$82,90,886.79	
Motorcycles	\$9,71,086.29	\$82,90,886.79	
Planes	\$8,77,942.21	\$82,90,886.79	
Ships	\$6,77,940.40	\$82,90,886.79	
Trains	\$2,03,804.26	\$82,90,886.79	
Trucks and Buses	\$9,47,355.18	\$82,90,886.79	
Vintage Cars	\$16,44,212.05	\$82,90,886.79	
<b>Total</b>	<b>\$82,90,886.79</b>	<b>\$82,90,886.79</b>	

Overall Revenue

[Use 'All Revenue' as a denominator to calculate the % of contribution]

Revenue , All Revenue



```
DIVIDE(Numerator, Denominator,
[AlternateResult])
```

Safe Divide function with ability to handle divide by zero case.

```
2 DIVIDE(|
```

`DIVIDE(Numerator, Denominator,  
[AlternateResult])`

Safe Divide function with ability to handle divide by zero case.

```
DIVIDE(  
    [Revenue],  
    [All Revenue],
```

Revenue Contribut... Format Percentage  
Measure Table \$ % , 00 2 ^

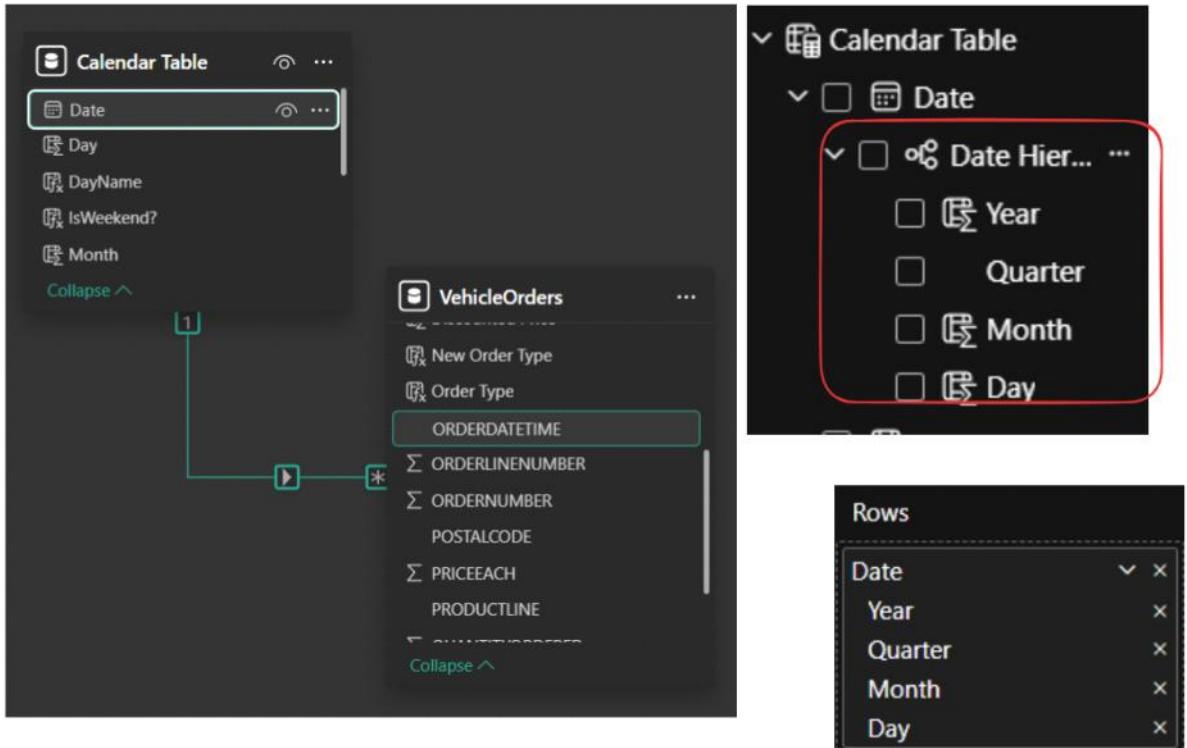
Structure Formatting

```
1 Revenue Contribution % =  
JNTR  
2 DIVIDE(  
3     [Revenue],  
4     [All Revenue],  
5     "-")
```

PRODUCTLINE	Revenue	All Revenue	Revenue Contribution %
Classic Cars	\$29,68,546.40	\$82,90,886.79	35.80%
Motorcycles	\$9,71,086.29	\$82,90,886.79	11.71%
Planes	\$8,77,942.21	\$82,90,886.79	10.59%
Ships	\$6,77,940.40	\$82,90,886.79	8.18%
Trains	\$2,03,804.26	\$82,90,886.79	2.46%
Trucks and Buses	\$9,47,355.18	\$82,90,886.79	11.43%
Vintage Cars	\$16,44,212.05	\$82,90,886.79	19.83%
<b>Total</b>	<b>\$82,90,886.79</b>	<b>\$82,90,886.79</b>	<b>100.00%</b>

Time Intelligence Trend Axis





Year	Revenue
	\$82,37,505.75
2013	\$10,319.84
2014	\$26,388.60
2015	\$8,400.00
2016	\$6,888.14
2017	\$1,384.46
<b>Total</b>	<b>\$82,90,886.79</b>

Column  
Whole number  
Structure

1 Order DATE(  
2 DATE(

**DATE(Year, Month, Day)**  
Returns the specified date in datetime format.

YYYY-MM-DD

The screenshot shows the Power BI Data Editor interface. At the top, there are tabs for Name (OrderDateOnly), Data type (Date/time), Format (\*14-03-2001 (Short)), Summarization (Don't summarize), Data category (Uncategorized), Sort by column (Sort), Data groups (Groups), Manage relationships (Relationships), New column (New column), and Calculations. Below this, the code editor displays:

```

1 OrderDateOnly =
2     DATE(
3         YEAR(VehicleOrders[ORDERDATETIME]),
4         MONTH(VehicleOrders[ORDERDATETIME]),
5         DAY(VehicleOrders[ORDERDATETIME]))
6

```

At the bottom, a preview of the data table is shown, containing columns: TERRITORY, CONTACTLASTNAME, CONTACTFIRSTNAME, DEALSIZE, Order Type, New Order Type, Target Delivery Date, Delay in Delivery, Discounted Price, and OrderDateOnly. The 'OrderDateOnly' column is highlighted with a green oval.

The screenshot shows the Power BI Data View interface. On the left, the 'Calendar Table' is expanded, showing columns for Date, Day, DayName, IsWeekend?, Month, and various date-related functions like OrderDateOnly, ORDERDATETIME, ORDERLINENUMBER, ORDERNUMBER, POSTALCODE, and PRICEEACH. A relationship is established between the 'Date' column in the Calendar Table and the 'OrderDateOnly' column in the VehicleOrders table. On the right, a summary table displays Revenue by Year from 2012 to 2017, with a total revenue of \$82,90,886.79.

Year	Revenue
2012	\$14,19,198.15
2013	\$21,39,088.35
2014	\$22,31,063.90
2015	\$14,30,868.61
2016	\$9,35,126.94
2017	\$1,35,540.84
<b>Total</b>	<b>\$82,90,886.79</b>

Year	Quarter	Month	Day	Revenue
2012	Qtr 1	January	1	\$2,200.00
			3	\$4,600.00
			5	\$4,200.00
			11	\$1,237.88
			13	\$3,400.00
			15	\$5,400.00
			16	\$1,958.88
			19	\$5,643.70
			23	\$2,700.00
			25	\$2,491.86
			29	\$5,859.31
			31	\$4,100.00
			<b>Total</b>	<b>\$43,791.63</b>

```
TotalYTD_Revenue =
TOTALYTD(
    TOTALYTD(Expression, Dates,
    [Filter], [YearEndDate]))
```

Evaluates the specified expression over the interval which begins on the first day of the year and ends with the last date in the specified date column after applying specified filters.

TotalYTD\_Revenue

Measure Table

\$ % Format Currency \$ % Auto

Structure

Formatting

```

1 TotalYTD_Revenue =
2     TOTALYTD(
$4         [Revenue],
5         'Calendar Table'[Date]
) 
```

Year	Quarter	Month	Revenue	TotalYTD_Revenue
2012	Qtr 1	January	\$43,791.63	\$43,791.63
		February	\$51,414.89	\$95,206.52
		March	\$76,338.54	\$1,71,545.06
		<b>Total</b>	<b>\$1,71,545.06</b>	<b>\$1,71,545.06</b>
	Qtr 2	April	\$77,575.37	\$2,49,120.43
		May	\$97,243.33	\$3,46,363.76
		June	\$1,38,861.39	\$4,85,225.15
		<b>Total</b>	<b>\$3,13,680.09</b>	<b>\$4,85,225.15</b>
	Qtr 3	July	\$1,38,678.06	\$6,23,903.21
		August	\$1,56,443.92	\$7,80,347.13
		September	\$1,52,451.17	\$9,32,798.3
		<b>Total</b>	<b>\$4,47,573.15</b>	<b>\$9,32,798.3</b>
	Qtr 4	October	\$1,68,564.59	\$11,01,362.89
		November	\$1,73,886.79	\$12,75,249.68
		December	\$1,43,948.47	\$14,19,198.15
		<b>Total</b>	<b>\$4,86,399.85</b>	<b>\$14,19,198.15</b>
		<b>Total</b>	<b>\$14,19,198.15</b>	<b>\$14,19,198.15</b>

2013	Qtr 1	January	\$1,79,418.39	\$1,79,418.39
		February	\$1,66,943.58	\$3,46,361.97
		March	\$1,56,196.94	\$5,02,558.91
		<b>Total</b>	<b>\$5,02,558.91</b>	<b>\$5,02,558.91</b>
	Qtr 2		<b>\$4,40,466.15</b>	<b>\$9,43,025.06</b>
	Qtr 3		<b>\$5,44,175.59</b>	<b>\$14,87,200.65</b>
	Qtr 4		<b>\$6,51,887.70</b>	<b>\$21,39,088.35</b>
		<b>Total</b>	<b>\$21,39,088.35</b>	<b>\$21,39,088.35</b>
2014			\$22,31,063.90	\$22,31,063.9

The screenshot shows the Power BI Measure Editor interface. At the top, there are tabs for 'Structure', 'Formatting', 'Properties', and 'Calculations'. In the 'Measure Table' dropdown under 'Structure', 'TotalQTD\_Revenue' is selected. Under 'Formatting', the 'Format' button is set to 'Currency'. Under 'Properties', the 'Data category' is 'Uncategorized'. Under 'Calculations', there are 'New measure' and 'Quick measure' buttons. The main area displays the DAX code for the measure:

```

1 TotalQTD_Revenue =
2     TOTALQTD(
$4         [Revenue],
4         'Calendar Table'[Date]
5     )

```

Year	Quarter	Month	Revenue	TotalYTD_Revenue	TotalQTD_Revenue
2012	Qtr 1	January	\$43,791.63	\$43,791.63	\$43,791.63
		February	\$51,414.89	\$95,206.52	\$95,206.52
		March	\$76,338.54	\$1,71,545.06	\$1,71,545.06
		<b>Total</b>	<b>\$1,71,545.06</b>	<b>\$1,71,545.06</b>	<b>\$1,71,545.06</b>
	Qtr 2	April	\$77,575.37	\$2,49,120.43	\$77,575.37
		May	\$97,243.33	\$3,46,363.76	\$1,74,818.7
		June	\$1,38,861.39	\$4,85,225.15	\$3,13,680.09
		<b>Total</b>	<b>\$3,13,680.09</b>	<b>\$4,85,225.15</b>	<b>\$3,13,680.09</b>
	Qtr 3	July	\$1,38,678.06	\$6,23,903.21	\$1,38,678.06
		August	\$1,56,443.92	\$7,80,347.13	\$2,95,121.98
		September	\$1,52,451.17	\$9,32,798.3	\$4,47,573.15
		<b>Total</b>	<b>\$4,47,573.15</b>	<b>\$9,32,798.3</b>	<b>\$4,47,573.15</b>
	Qtr 4	October	\$1,68,564.59	\$11,01,362.89	\$1,68,564.59
		November	\$1,73,886.79	\$12,75,249.68	\$3,42,451.38
		December	\$1,43,948.47	\$14,19,198.15	\$4,86,399.85