

# Why Every Power BI Report Needs a Date Table

In this exercise you will see that DAX time-intelligence formulas work *incorrectly* without a Date Table. You will then see that the formula works correctly after you add a date table and relate it to your data table.

## 1. Load a Simple Data Set:

Use the **Home > Data > Enter data** feature to create a new table named **Sales**.

	Sales Date	Sales Amount	+
1	1/2/2024	100	
2	1/5/24	200	
3	1/8/24	150	
+			

Name:

## 2. Add a Table Visualization with the **Sales Date** and **Sales Amount** fields.

Columns

- Sales Date (expanded)
  - Year
  - Quarter
  - Month
  - Day
- Sales Amount

Year	Quarter	Month	Day	Sales Amount
2024	Qtr 1	January	2	\$100
2024	Qtr 1	January	5	\$200
2024	Qtr 1	January	8	\$150
<b>Total</b>				<b>\$450</b>

3. Create a **YTD Sales** measure with the following formula:

```
YTD Sales = TOTALYTD(SUM(Sales[Sales Amount]), Sales[Sales Date])
```

4. Add the YTD Sales measure to the table visual.

The image shows a 'Columns' pane on the left with the following items: Sales Date, Year, Quarter, Month, Day, Sales Amount, and YTD Sales. A green 'Add' button is positioned above the 'YTD Sales' measure. A green arrow points from the 'Add' button to the 'YTD Sales' measure in the columns pane, and another green arrow points from the 'Add' button to the table visual below.

Year	Quarter	Month	Day	Sales Amount	YTD Sales
2024	Qtr 1	January	2	\$100	\$100
2024	Qtr 1	January	5	\$200	\$200
2024	Qtr 1	January	8	\$150	\$150
<b>Total</b>				<b>\$450</b>	<b>\$450</b>

Notice the YTD Sales are not correct. The YTD Sales for January 5<sup>th</sup> should be \$300 (\$100 + \$200).

5. Add a new table named **Report Calendar**.
  - a. In the Data Pane, select the **Sales** table.
  - b. **Table tools** > **New table**.
  - c. Enter the following formula:

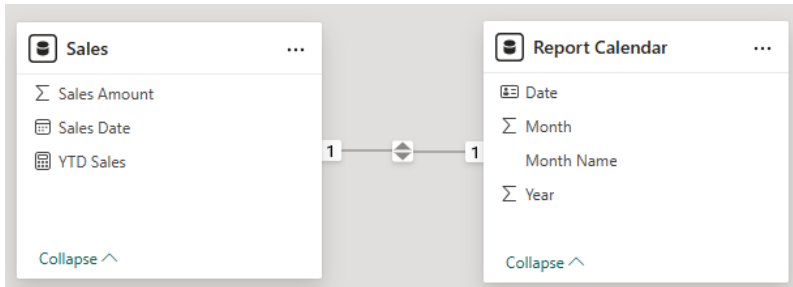
```
Report Calendar = ADDCOLUMNS (
    CALENDARAUTO ()
    , "Year", Year ([Date])
    , "Month", Month ([Date])
    , "Month Name", Format ([Date], "MMMM")
)
```

6. Mark the **Report Calendar** table as a Date Table.
  - a. In the Data Pane, select the **Report Calendar**.
  - b. **Table tools** > **Mark as date table**.

7. Create a relationship between the **Report Calendar** and the **Sales** tables via the two date fields. You can use either the Modeling View method or the Manage Relationships method.

### Modeling View method

- a. Go to the **Modeling** view.
- b. Drag the **Report Calendar's Date** field to the **Sales** table's Sales Date field.



### Manage Relationships method

- a. **Modeling > Manage Relationships.**
- b. Click the **+ New Relationship** button.
- c. Set **From table** to **Report Calendar.**
- d. Click the **Date** column.
- e. Set **To table** to **Sales.**
- f. Click the **Sales Date** column.
- g. Click the **Save** button and then the **Close** button.

The 'New relationship' dialog box shows the following configuration:

- From table:** Report Calendar
- To table:** Sales
- From column:** Date
- To column:** Sales Date
- Cardinality:** One to one (1:1)
- Cross-filter direction:** Both
- Make this relationship active:**
- Assume referential integrity:**

Buttons: Save, Cancel

Notice the YTD Sales now reflects accurate values.

Year	Quarter	Month	Day	Sales Amount	YTD Sales
2024	Qtr 1	January	2	\$100	\$100
2024	Qtr 1	January	5	\$200	\$200
2024	Qtr 1	January	8	\$150	\$150
<b>Total</b>				<b>\$450</b>	<b>\$450</b>

*Before*

Year	Quarter	Month	Day	Sales Amount	YTD Sales
2024	Qtr 1	January	2	\$100	\$100
2024	Qtr 1	January	5	\$200	\$300
2024	Qtr 1	January	8	\$150	\$450
<b>Total</b>				<b>\$450</b>	<b>\$450</b>

*After*