

# Specialist Practice Exam #3 Solutions

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This exam follows the 2021 Specialist exam prep guide shown here:

<https://www.tableau.com/learn/certification/desktop-specialist>

## Connecting to & Preparing Data

1. Which steps can be followed to create a tds file?
  - a. Select Server, then Publish Data Source, then select the data source
  - b. On Data pane, right-click the data source, and then select Add to Saved Data Sources.
  - c. Select File on the toolbar, then select Export Packaged Workbook
  - d. Select File on the toolbar, then select Export Data Source, then select the data source

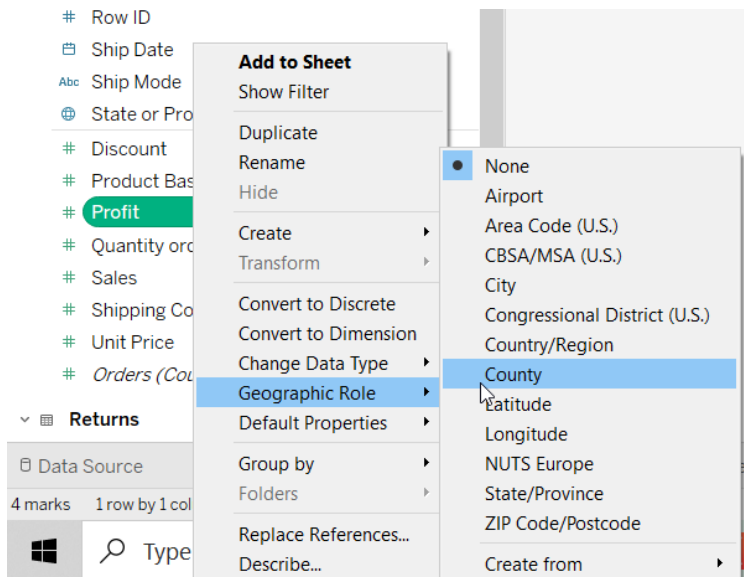
One way to save a data source is mentioned here [https://help.tableau.com/current/pro/desktop/en-us/export\\_connection.htm#save-a-data-source](https://help.tableau.com/current/pro/desktop/en-us/export_connection.htm#save-a-data-source) but you can also create a tds file by selecting Data on the toolbar, selecting the data source, and then selecting Add to Saved Data Sources.

2. With a data source that uses relationships, which describes what is shown in the data source preview pane when you're viewing the logical layer?
  - a. A list of the field names, tables, and data types
  - b. A preview of the data for the table currently selected
  - c. A preview of all related tables
  - d. A preview of the combined (via join or union) tables

The preview pane in the physical layer will show the first 1,000 rows of the currently selected table. If you double-click to view the physical layer, you'll view the preview of the combined (via join or union) tables. The metadata view shows field names & tables. [https://help.tableau.com/current/pro/desktop/en-us/environment\\_datasource\\_page.htm#Data](https://help.tableau.com/current/pro/desktop/en-us/environment_datasource_page.htm#Data)

3. Which of the following is a geographic role available in Tableau? [select 3]
  - a. Latitude
  - b. Airport
  - c. Continent
  - d. FIPS code
  - e. County

The predefined geographic roles can be seen here:



4. Which of the following is an example of metadata that can be managed in Tableau? Select all that apply.
- a. The data type of the data in the source database
  - b. Which fields are hidden
  - c. The number of rows in the data
  - d. The default aggregation for a field

Renaming fields and changing the defaults for formatting or aggregation are metadata management tasks that can be handled in Tableau.

You can change the data type of a field in Tableau, but you cannot change the underlying data via metadata management... the data type and the number of rows in the data in the *source system* cannot be changed by Tableau. The documentation explains, “Changes that you make in the metadata area of the data source do not modify your underlying data.” [https://onlinehelp.tableau.com/current/pro/desktop/en-us/howto\\_connect.htm#manage-metadata](https://onlinehelp.tableau.com/current/pro/desktop/en-us/howto_connect.htm#manage-metadata)

5. Which file type can include an extract? Select all that apply.
- a. Data Source (.tds)
  - b. Packaged Data Source (.tdsx)
  - c. Packaged Workbooks (.twbx)
  - d. Workbooks (.twb)

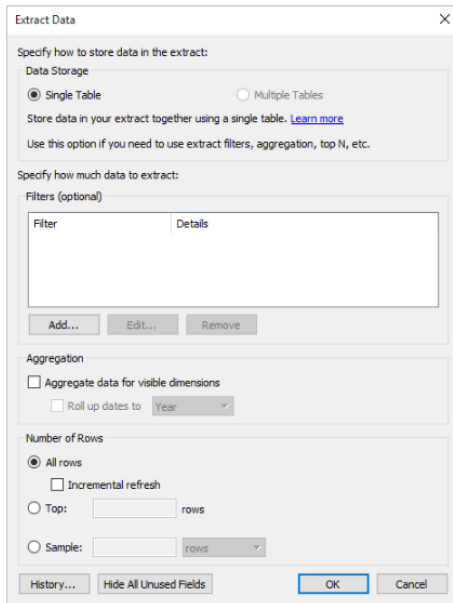
Data source files do not contain the actual data

Packaged data source files and packaged workbooks can both include extracts.

Workbook files can connect to extracts, but they do not themselves include extract.

[See this link for further info.](#)

6. Which of the following is most likely to reduce the size of the extract?



- a. Selecting the Physical Tables Data Storage option
- b. Using the incremental refresh option
- c. Materialize calculations with the “Compute Calculations Now” option
- d. Removing an filter

The Tableau documentation explains that the Physical Tables option can potentially improve performance and help reduce the size of the extract file. When tables are joined, a new row is created each time the join criteria are satisfied, so that the resulting join can have many more rows than were in the original tables. In this case, storing the Physical tables will take up less space. [https://help.tableau.com/current/pro/desktop/en-us/extracting\\_data.htm#normalized\\_tips](https://help.tableau.com/current/pro/desktop/en-us/extracting_data.htm#normalized_tips)

Using the incremental refresh option should not impact the size of the extract – it should only impact whether the refresh works by removing the old extract completely and recreating it, or whether it adds new rows to the existing extract. [https://onlinehelp.tableau.com/current/pro/desktop/en-us/extracting\\_refresh.htm#configure-an-incremental-extract-refresh](https://onlinehelp.tableau.com/current/pro/desktop/en-us/extracting_refresh.htm#configure-an-incremental-extract-refresh)

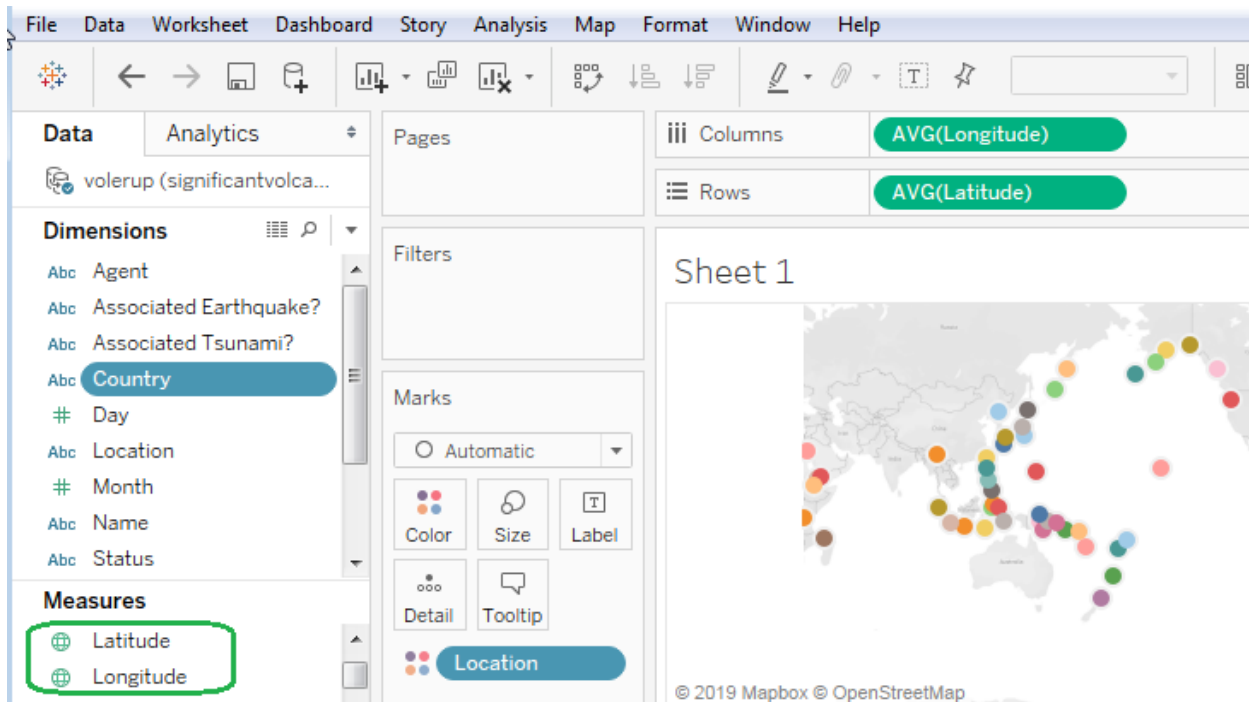
Materializing calculations may reduce the time to open the workbook since the results of the calculations will be saved in the extract, but will not reduce the workbook size.

[https://onlinehelp.tableau.com/current/pro/desktop/en-us/extracting\\_data.htm#about-the-compute-calculations-now-option-for-extracts](https://onlinehelp.tableau.com/current/pro/desktop/en-us/extracting_data.htm#about-the-compute-calculations-now-option-for-extracts)

Removing a filter is likely to increase the size of the extract.

7. If a Tableau workbook does not include the fields *Latitude (generated)* and *Longitude (generated)* this indicates which of the following:
  - a. The workbook does not include a map
  - b. The workbook does not include any fields with a geographic role such as state, city, country, or zip code
  - c. The workbook does not include custom geocoding
  - d. All locations are ambiguous or unknown

It doesn't matter whether your workbook contains a map, *Latitude (generated)* and *Longitude (generated)* are created when fields are assigned geographic roles. However, this will not happen if your data already has **non-generated** Longitude and Latitude. Here is an example:



In this example, Latitude and Longitude are the only fields with geographic roles, and so, *Latitude (generated)* and *Longitude (generated)* do not appear. If we set a geographic role for Country, *Latitude (generated)* and *Longitude (generated)* will appear.

8. [Add relationships to a data source] Which of the following describes a relationship?
- Tables are connected by a flexible noodle in the physical layer
  - Tables are connected by a venn diagram in the physical layer
  - Tables are connected by a flexible noodle in the logical layer
  - Tables are connected by a venn diagram in the logical layer
  - Tables are kept as separate data sources, with the highlighted paperclip icon linking them

The venn diagram is used for joins

Relationships connect tables using noodles in the logical layer. [https://help.tableau.com/current/online/en-us/datasource\\_datamodel.htm](https://help.tableau.com/current/online/en-us/datasource_datamodel.htm)

E describes a blend rather than a relationship

9. [Create a data source that uses multiple connections] What is required to combine columns from an Excel worksheet with columns from a database table?
- two connections and two data sources
  - one connections and two data sources
  - one connection and one data source
  - two connections and one data source

If you had a Excel worksheet with multiple worksheets you could connect the sheets using a single connection. If you had a database schema with multiple tables, you could similarly connect the sheets using a single connection. But in this

case we are connecting data from two different sources, so two separate data connections are required. Once those connections are created, the columns can be combined using a cross-database join.

Resource: [https://help.tableau.com/current/pro/desktop/en-us/joining\\_tables.htm#crossdatabase-joins](https://help.tableau.com/current/pro/desktop/en-us/joining_tables.htm#crossdatabase-joins)

10. [Add joins and unions] Which of the following describes the result of a full outer join?
- The source tables are located on an external source rather than on the Tableau server
  - The join is deferred until analysis. The join is executed when a view is created which uses fields from both tables.
  - A table that contains values that have matches in both tables. Rows without matches are not included in the result.
  - A table that contains all values from both tables. When there is no match on the join criteria, the columns for the table where the match could not be found will have null values.
  - The symbol for this join is a Venn diagram with only the overlapping portion filled.

A is incorrect because the join type (Inner, Left, Right, Full) doesn't describe the location of the data. B describes a relationship rather than a join. Answers B and E describe an inner join. The correct answer, D, identifies the fact that an inner join will include all rows from both tables.

Resource: [https://help.tableau.com/current/pro/desktop/en-us/datasource\\_datamodel\\_faq.htm#can-i-use-joins-between-logical-tables](https://help.tableau.com/current/pro/desktop/en-us/datasource_datamodel_faq.htm#can-i-use-joins-between-logical-tables)

## Exploring & Analyzing Data

11. Which chart type is best for viewing the distribution of a measure?
- Line charts
  - Scatter plots
  - Histograms
  - Tree maps
  - Stacked bar chart

A histogram bins a continuous measure to show how the data is distributed

[https://help.tableau.com/current/pro/desktop/en-us/what\\_chart\\_example.htm#distribution](https://help.tableau.com/current/pro/desktop/en-us/what_chart_example.htm#distribution)

12. Which of the following is automatically organized in a hierarchy?
- Date fields
  - Geographic fields
  - Fields from primary tables with blend to secondary table
  - Fields with the "sub" prefix
  - Multiple dimensions on the row or column shelf

The documentation explains, "When you connect to a data source, Tableau automatically separates date fields into hierarchies so you can easily break down the viz."

[https://help.tableau.com/current/pro/desktop/en-us/qs\\_hierarchies.htm](https://help.tableau.com/current/pro/desktop/en-us/qs_hierarchies.htm)

13. Which visualization always represents a measure using color?
- Bar chart
  - Scatter plot
  - Combo chart
  - Highlight table

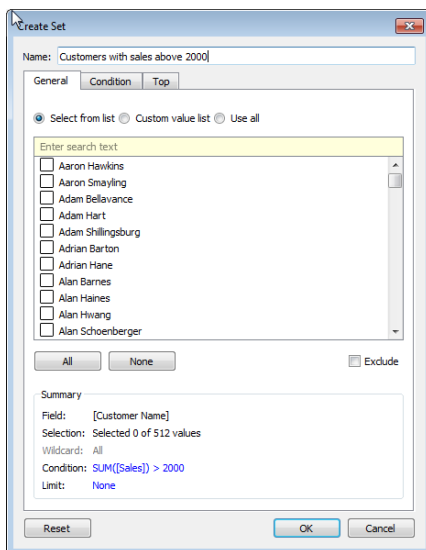
A highlight table is represents a measure using color. The other options may or may not use color to represent a measure.

[https://onlinehelp.tableau.com/current/pro/desktop/en-us/buildexamples\\_highlight.htm](https://onlinehelp.tableau.com/current/pro/desktop/en-us/buildexamples_highlight.htm)

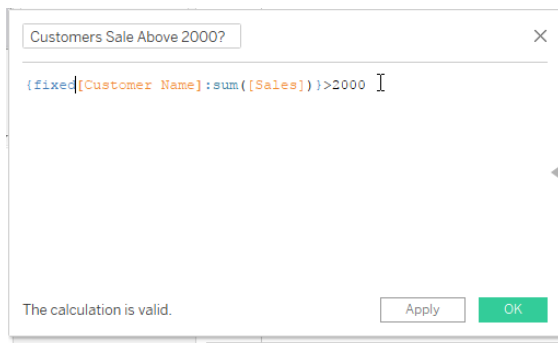
14. You would like to divide your customers into two categories – those with sales above a certain threshold and those with sales below that threshold. Which of the following tools will allow you to do this? Select all that apply.

- a. Hierarchy
- b. Parameter
- c. Set
- d. Calculation

You can do this with a set



Or with a calculated field:



Simply adding a parameter will not change the view. You'd need to use the parameter as part of a calculation or filter to change the view. And a hierarchy will not help with this unless you already have a field that divides into those above or below 2000.

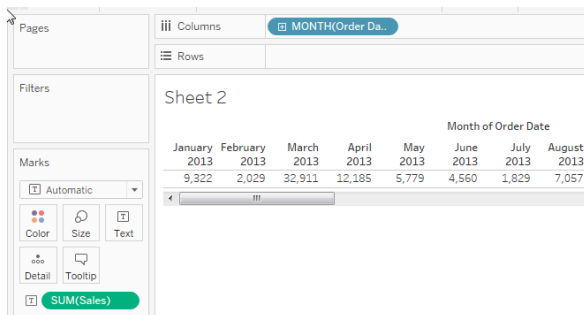
15. Which of the following does Tableau automatically put into a hierarchy?

- a. Date fields (year > month > day)
- b. Geographic fields (country > city > state)
- c. Field with field name containing the keyword "sub-" (product category, product sub-category)
- d. Numeric fields (Millions > Thousands > Ones)

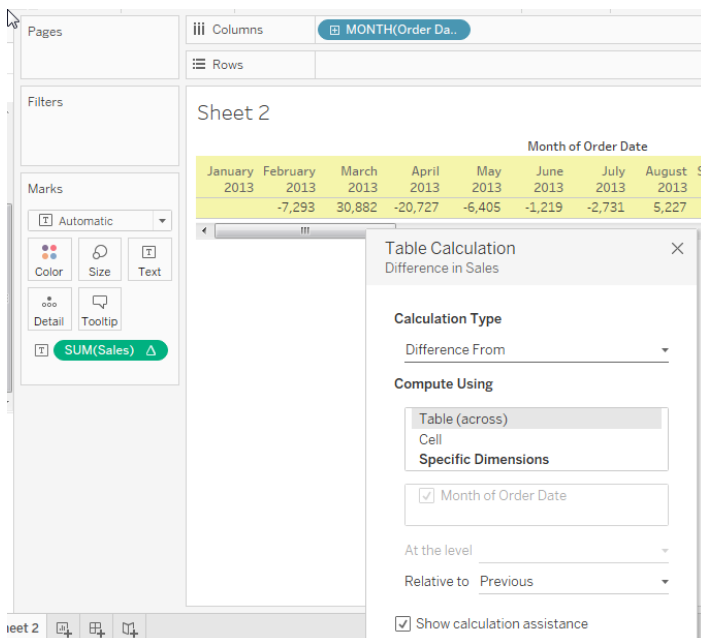
The tableau documentation explains, “When you connect to a data source, Tableau automatically separates date fields into hierarchies so you can easily break down the viz. You can also create your own custom hierarchies. For example, if you have a set of fields named Region, State, and County, you can create a hierarchy from these fields so that you can quickly drill down between levels in the viz.” [https://onlinehelp.tableau.com/current/pro/desktop/en-us/qs\\_hierarchies.htm](https://onlinehelp.tableau.com/current/pro/desktop/en-us/qs_hierarchies.htm)

16. Which of the following can you use to create a calculated field that shows the change from the prior month total?
- An aggregate calculation
  - A table calculation**
  - A basic calculation
  - A subtraction calculation

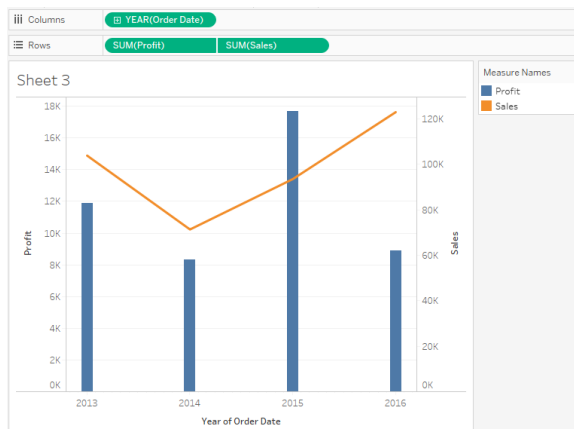
A table calculation can show the difference between the current and prior month. First we have a view showing the total sales by month:



Then we add the table calculation to show difference from the prior month:



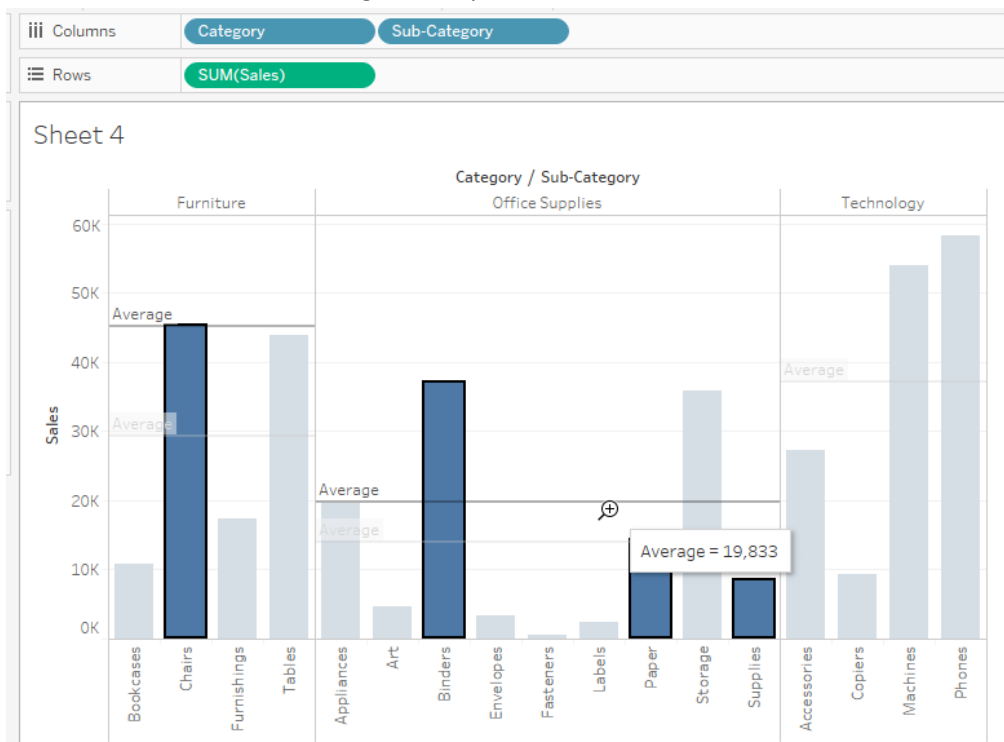
17. In which year or years is SUM(Profit) greater than SUM(Sales)?



- 2013, 2014, and 2016
- 2014
- All of the above
- None of the above

The two measures shown here are using different axes that are not synchronized. The axis for Sales is shown on the right side, while the axis for Profit is shown on the left side. SUM(Sales) is above 70K for all years shown, while SUM(Profit) is below 18K for all years shown.

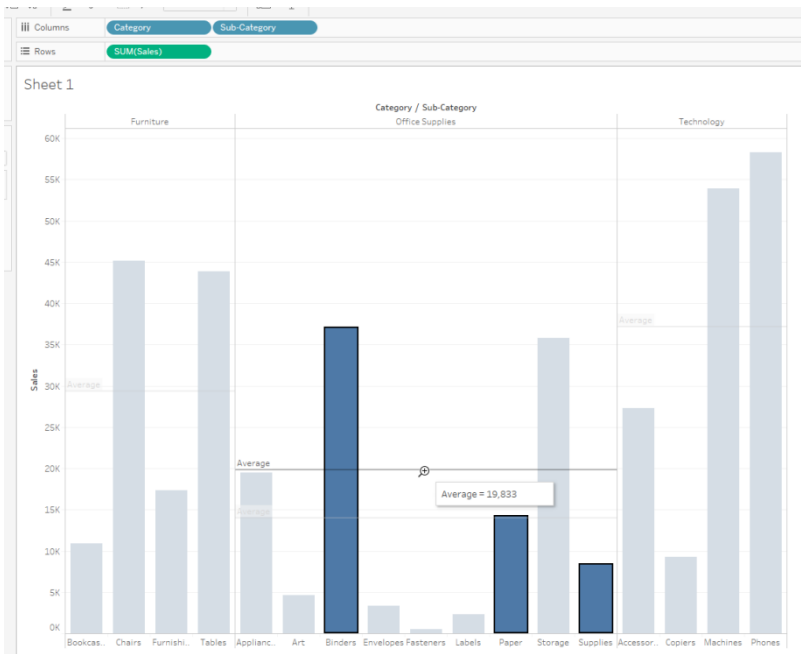
18. The chart below has the value for one of the average reference lines highlighted in the tooltip, with a value of 19,833. What does this average line represent?



- The average values of sales for all sub-categories in the office supplies category
- The average values of sales for all product categories
- The average values of sales for Binders, Paper, and Supplies
- The average values of sales for Binders, Paper, Supplies and Chairs

The reference line shows the average values of sales for the selected subcategories within the current pane, which in this case is Office Supplies. If you unselect Chairs you will notice the value does not change:



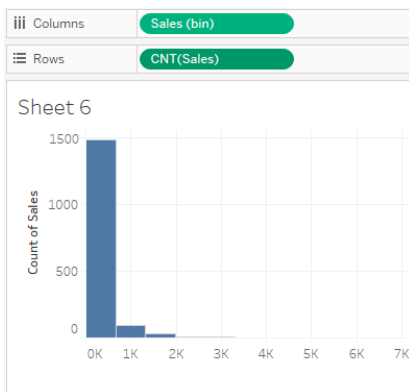


19. A histogram must include which of the following? (select all that Apply)

- a. Bin
- b. Dimension
- c. Count or Count Distinct
- d. An aggregate function (SUM, MAX, MIN, AVG)

A histogram always bins data and uses the COUNT (also shown as CNT) or COUNT DISTINCT (COUNTD) function to count the number of occurrences within the bin:

[https://onlinehelp.tableau.com/current/pro/desktop/en-us/buildexamples\\_histogram.htm](https://onlinehelp.tableau.com/current/pro/desktop/en-us/buildexamples_histogram.htm)



20. If you are creating a geographic map with cities, but some of the locations are showing as ambiguous, how might you correct this?

- a. Add a field called "Street Name" to the view
- b. Add *Latitude (generated)* and *Longitude (generated)* to the view.
- c. Add a field called "State" to the view
- d. In the Edit Locations dialog box, click on one of the Ambiguous cells to match a known location to your unknown data. When you click on an unrecognized cell, a search box appears. As you begin typing in the search box, Tableau generates a list of possible locations. Select a location from the list.

When you see that a city is ambiguous that means it exists in multiple states or countries, and so Tableau doesn't know which state or country to map it to. For example, there is a Rome in Italy, but also a less-well known city also called Rome, New York in the USA [https://en.wikipedia.org/wiki/Rome%2C\\_New\\_York](https://en.wikipedia.org/wiki/Rome%2C_New_York).

Tableau does not map streets, so including street name will not resolve the ambiguity. Adding *Latitude (generated)* and *Longitude (generated)* will not resolve ambiguous locations because unless Tableau has more information it cannot determine which state or country the city should go in. Editing the location will help for misspelled or unrecognized locations, but not for ambiguous locations.

Adding State might resolve the ambiguity. For example, if the city is Rome and we add New York, Tableau will know that the city is not Rome in Italy but rather Rome in New York state.

[https://onlinehelp.tableau.com/current/pro/desktop/en-us/maps\\_editlocation.htm](https://onlinehelp.tableau.com/current/pro/desktop/en-us/maps_editlocation.htm)

Answer D is not correct because the Edit Location Dialog Box requires a latitude and longitude to resolve the ambiguity:

Geographic roles

Country/Region: United States

State/Province: None

City: city 138 issues

Match values to locations

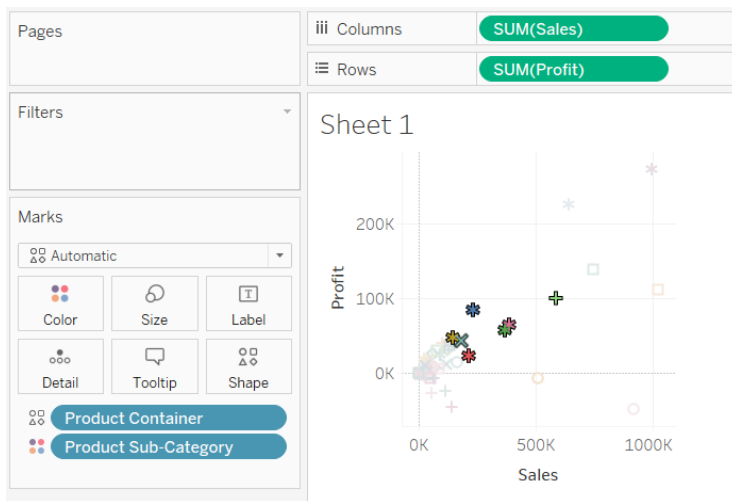
City

Your Data	Matching Location
Addison	Ambiguous
Akron	Ambiguous
Alexandria	virginia
Annapolis	Enter a Latitude and Longitude...
Appleton	Ambiguous
Arlington	Ambiguous
Ashland	Ambiguous
Atlanta	Ambiguous
Austin	Ambiguous

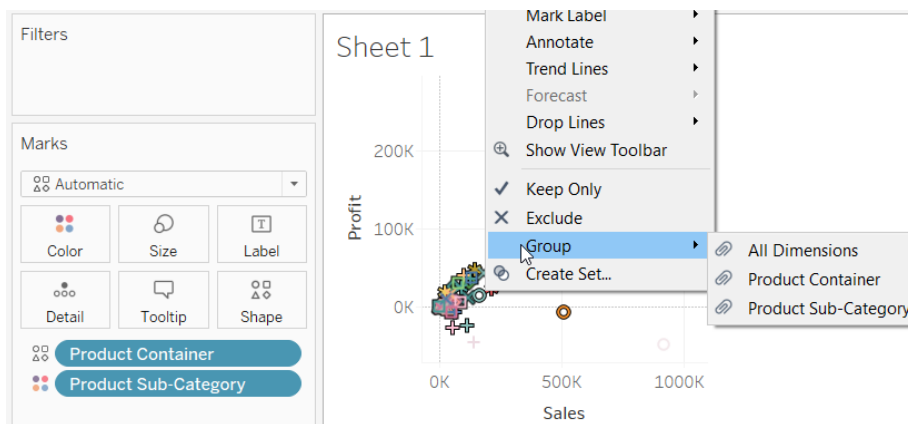
☒ Show only unmatched locations in drop down list

Reset Matches OK Cancel

21. [Create groups by using marks, headers, and the data pane] If we right-click the highlighted points and create a group, what field(s) will be used in the group?



- Product Container only
- Product Sub-category only
- Both product container and product category
- The menu will provide options: All Dimensions, Product Container, and Product Sub-Category
- SUM(Sales) and SUM(Product)



22. [Create sets by using marks and the data pane] You'd like to create a set with the Top 10 highest grossing movies based on filters selected by the worksheet viewer. What type of filter should you use?

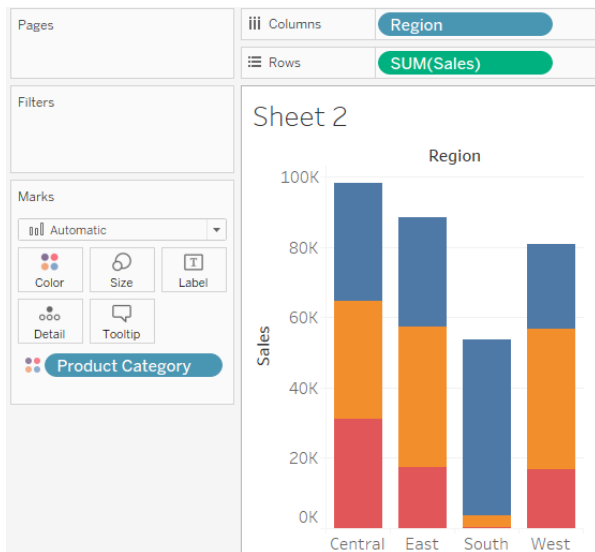
- Context Filter
- Extract Filter
- Data source Filter
- Dimension Filter
- Table Calc Filters

Extract Filters, data source filters, and context filters all execute before sets, so with those three options the data will first be limited and then the SET will determine the top 10 based on the filtered data. However, the viewer cannot change extract filters or data source filters. Hence context filter is the correct answer.

Dimension filters and table calc execute after the set operation, so the top 10 movies will be determined before the filter is run.

Resource: [https://help.tableau.com/current/pro/desktop/en-us/order\\_of\\_operations.htm](https://help.tableau.com/current/pro/desktop/en-us/order_of_operations.htm)

23. [Display totals on a worksheet] Which of the following can be used to add totals to the view below? [select two]

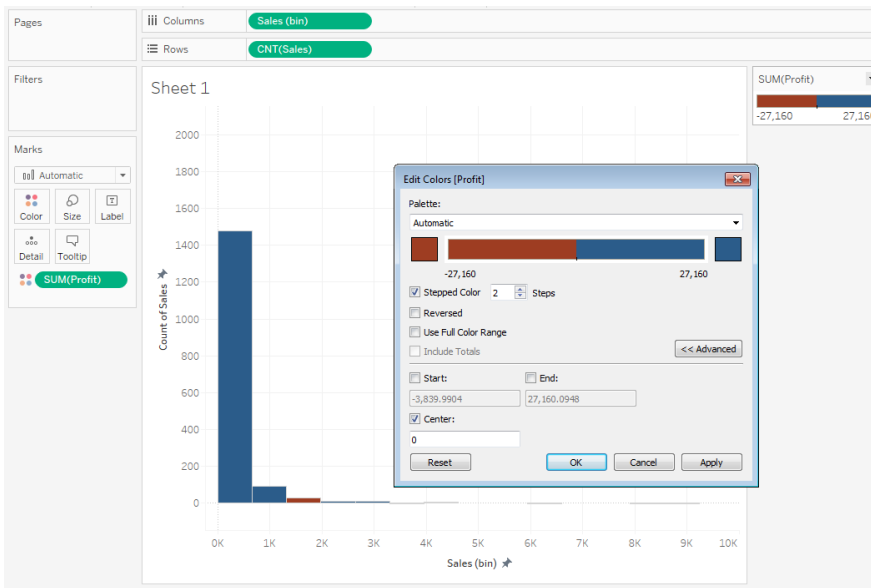


- Right-click the Sales pill in the data pane and select Create, then Add Grand Total
- On the Analysis Pane, drag Totals into the view and drop on the Row Grand Totals area
- Right-click the Sales pill in the data pane and select Create, then select Calculated Field. Enter TOTAL(Sales). Double-click the new field to add it to the view.
- Select the Analysis option on the toolbar, then Totals and Add Row Grand Total
- Select the Analysis option on the toolbar, then Totals and Add Column Grand Total

## Sharing Insights

24. Your view has a histogram showing the distribution of Sales. You'd like to use a color gradient to shade the bars according to the value of Profit. You drag profit to the color mark. How would you adjust the colors so that all negative values are shown in one color and all positive values are shown in a second color?

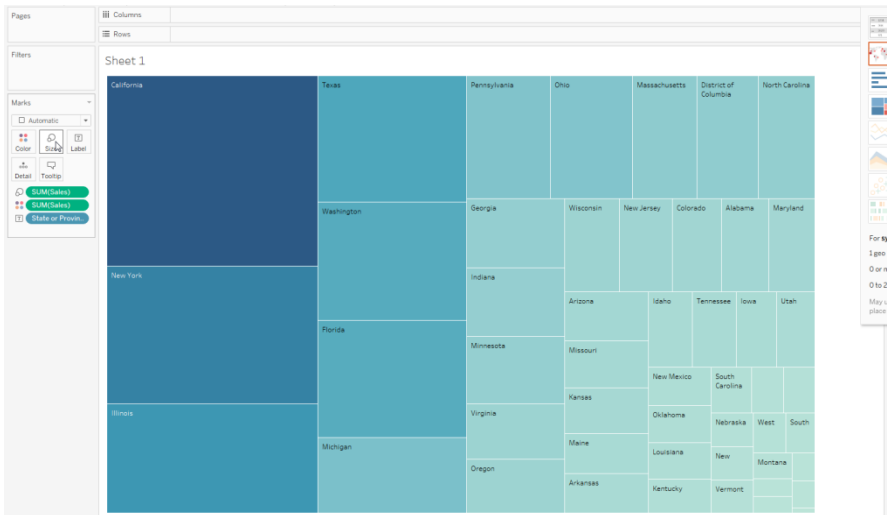
- Click the colors mark, select edit colors, and check center on zero and switch the dropdown from continuous to discrete color gradient.
- Click on the quantitative legend and select format legend. Select a diverging palette and stepped color.
- Click the arrow on the colors mark, select edit colors, select a diverging palette from the dropdown and check stepped color with 2 steps and check center on zero.
- Click the colors mark, switch to a palette with two colors and check discrete color.



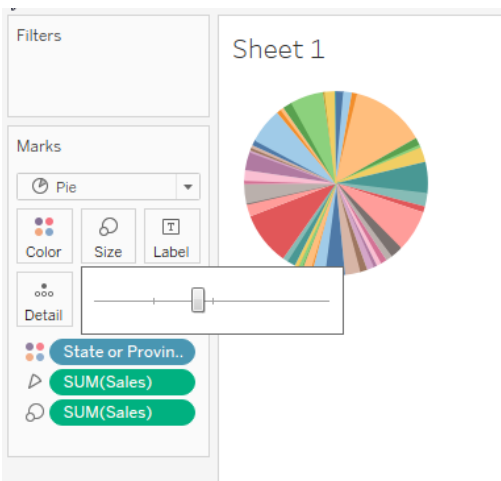
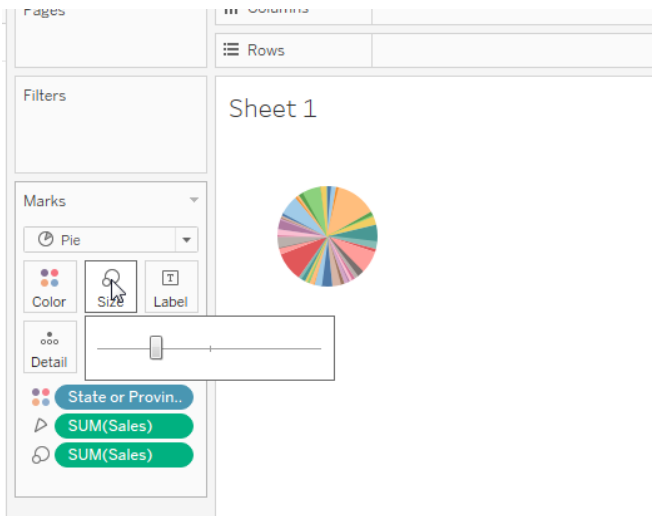
25. For which of the following is it *not* possible to adjust the size of the marks?

- a. Bar chart
- b. Tree map
- c. Pie chart
- d. Heat maps

Try adjusting size on a tree map and you will see it is not an option:

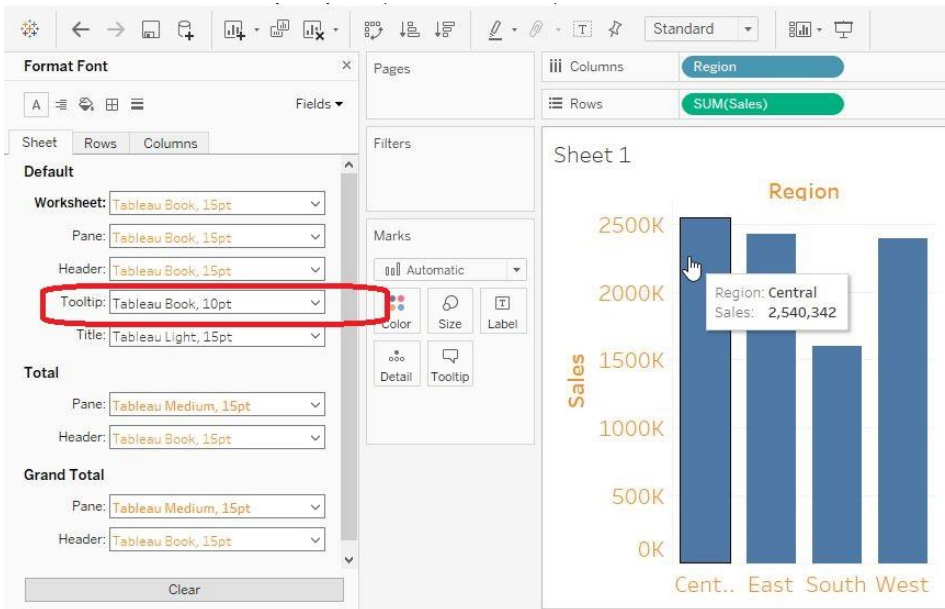


If you look at the other visualizations listed, you will see that you can edit the mark size:

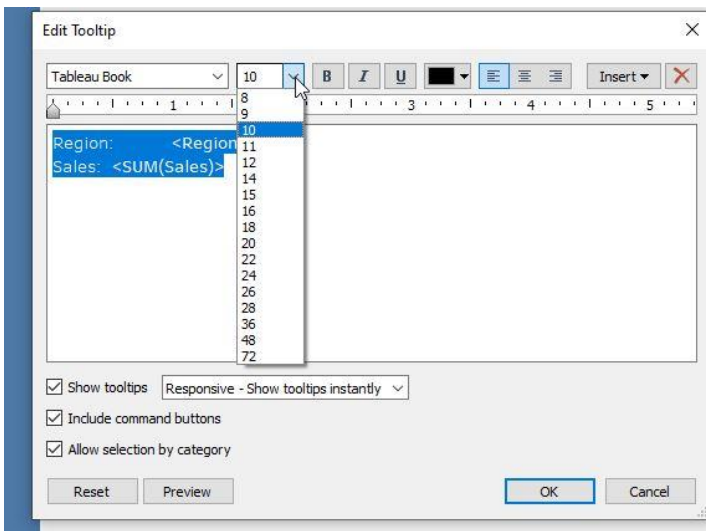
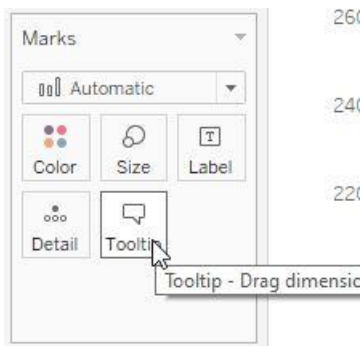


26. Editing the font at the worksheet level applies the changes you make to all text fields in view except for which of the following? (select all that apply)
- a. Header
  - b. Axis
  - c. Caption
  - d. Tooltip

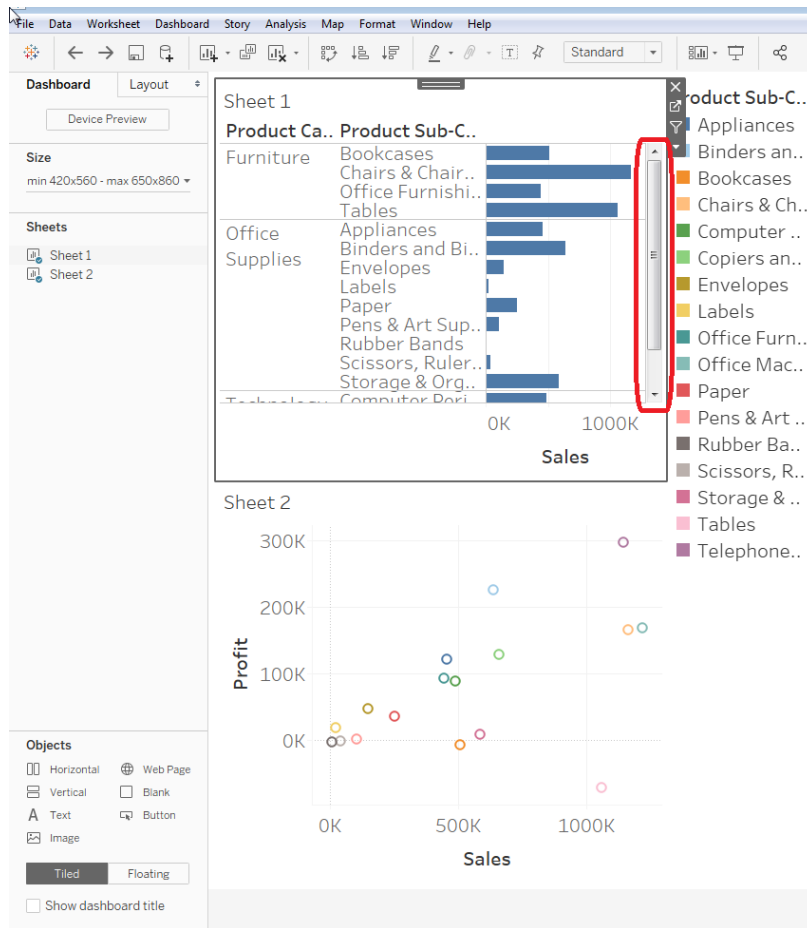
Editing the font at the worksheet level applies the changes you make to all text fields in view except the Tooltip fields. Try it yourself to confirm, and also look at the example below where I've changed the font for the workbook but the tooltip is unchanged.



If you want to change the tooltip, you need to set the font using the highlighted box or click on the tooltip card and edit:



27. You have a dashboard containing multiple worksheets. One of the worksheets in the dashboard has a scroll bar. Which of the following steps can you take to remove the scroll bar?



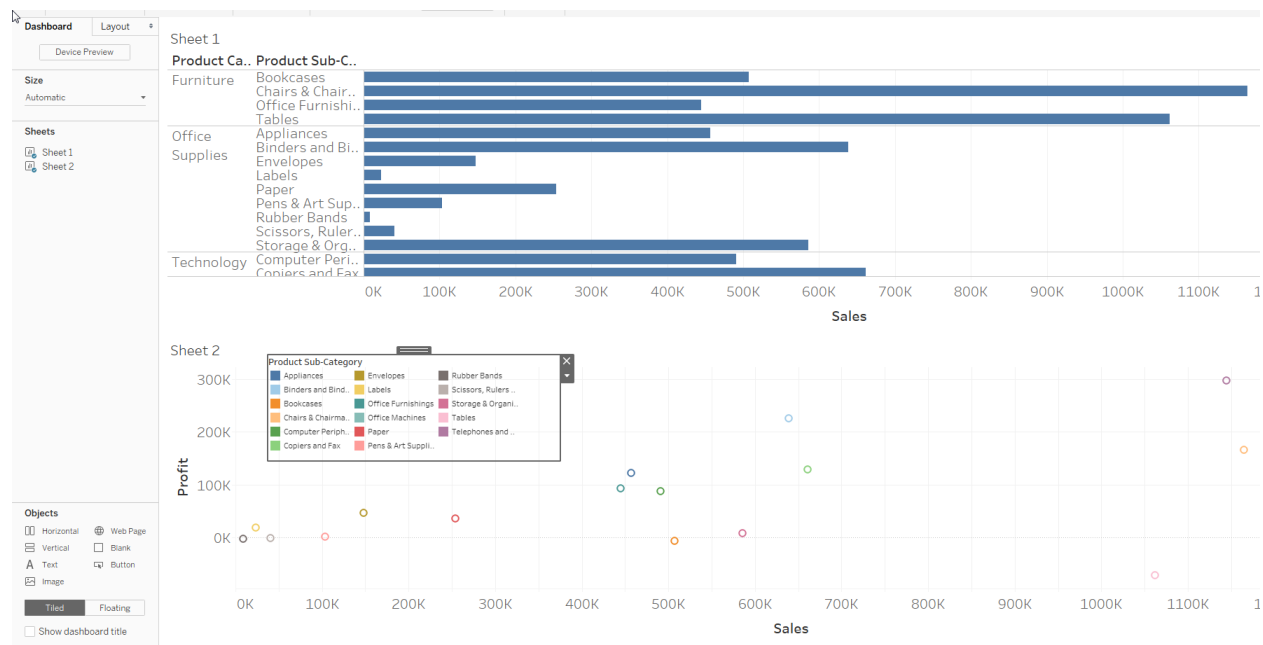
- Right click on the scroll bar and select remove.
- Click the more options arrow, select fit, and select fit height.
- Click the more options arrow, select font, and use the dropdown to decrease the font size to reduce the size of the worksheet.
- Right click on the worksheet name on the dashboard pane, select fit, and then select entire view.

There is no "remove" option, so choice "a" is not correct.

If you try "fit height" you will see that this adjusts the size so that the scrollbar no longer shows.

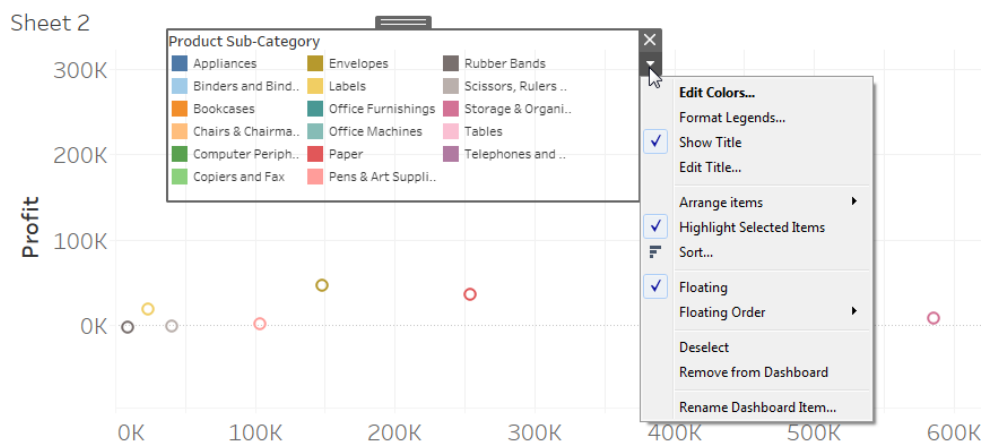
28. Which of the following describes the layout of the dashboard below?





- Tiled layout with the legend floating
- Floating layout with the legend tiled
- Floating layout for all elements
- Tiled layout for all elements

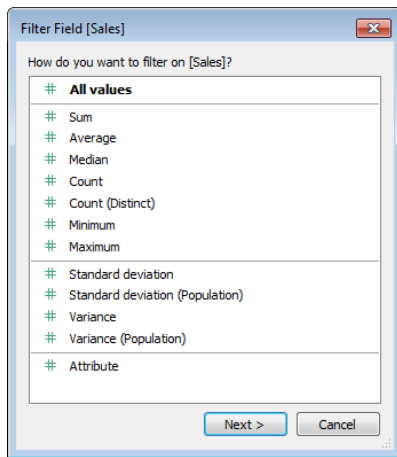
The legend is overlapping the Profit worksheets, which is only possible because it is set as floating.



However, the layout of the dashboard overall is set to tiled. You can see this because the Tiled button is selected.

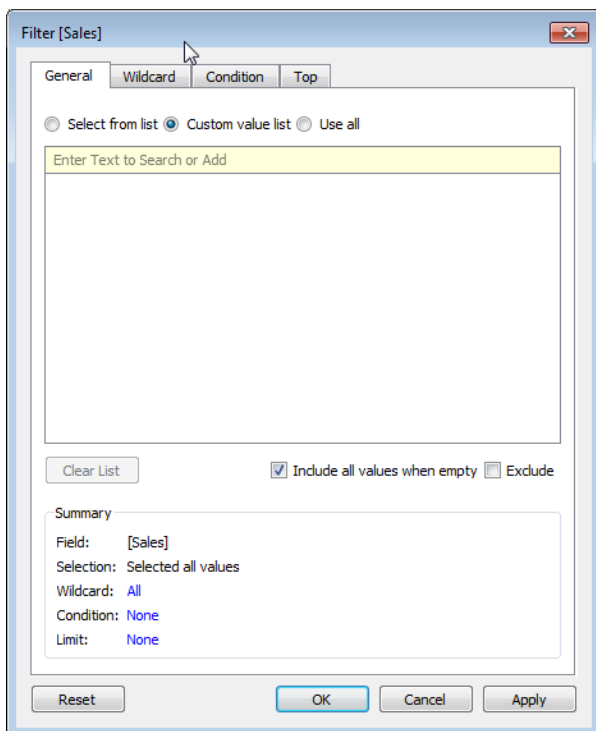
## Understanding Tableau Concepts

29. If you drag a field called Sales to the filter area, and you do not get a menu like the one shown below, but are immediately taken to the filter menu, what does this indicate about Sales?

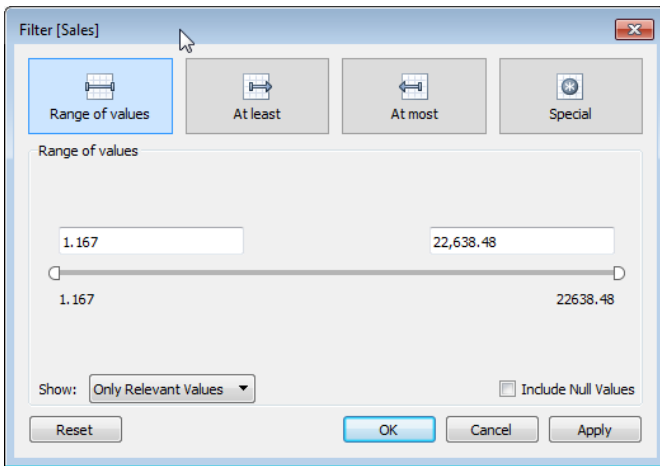


- a. It is set as a measure
- b. It is set as a dimension**
- c. It is set as discrete
- d. It is set as continuous

But if it is set as a dimension, you will be taken immediately to a filter menu. If Sales is a discrete dimension, the filter menu will look like this:

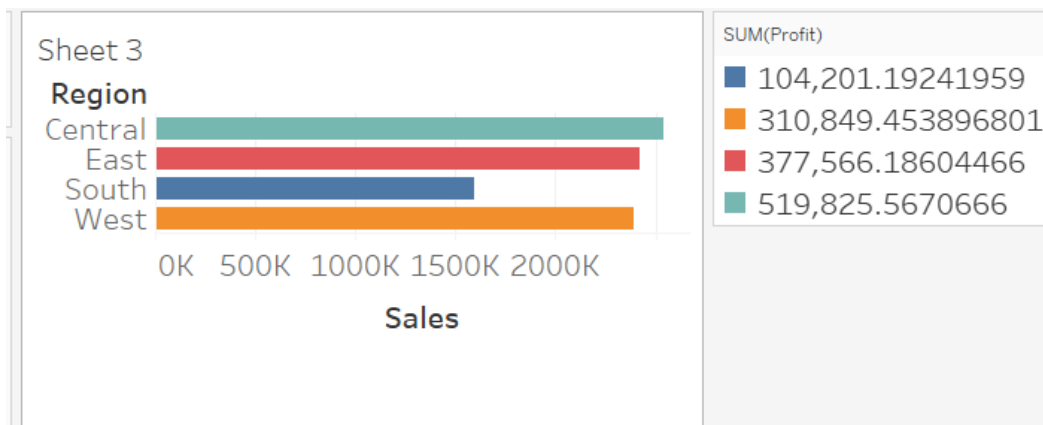


If it is a continuous dimension, the filter menu will look like this:



But in either case, if the field is set as a dimension then you only have the option to filter on the row-level values, not on the aggregated values.

30. In this view, which field is continuous and which is discrete?



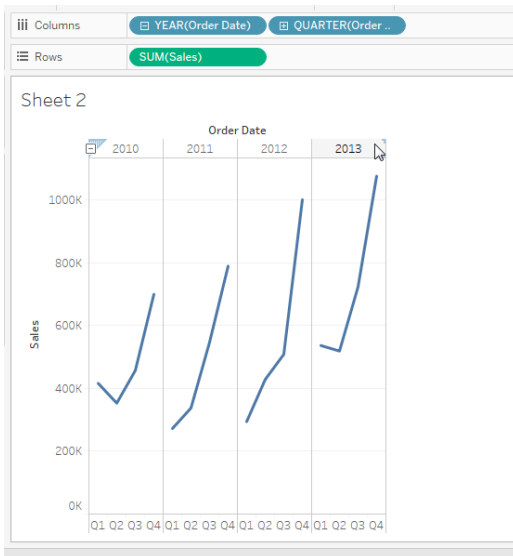
- a. Sales is discrete and Profit is discrete
- b. Sales is continuous and Profit is discrete**
- c. Sales is discrete and Profit is continuous
- d. Sales is continuous and Profit is continuous

Profit has a color

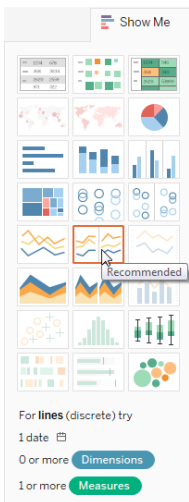
31. A line chart is broken into separate sections by year. What does this indicate about the date used in the line chart?

- a. The date is a continuous dimension
- b. The date is a continuous measure
- c. The date is a discrete measure
- d. The date is a discrete dimension**

Here is an example with date as a discrete dimension:



Also, in the show me menu you see that lines (discrete) are divided, while lines (continuous) are not divided:



32. Which of the following will increase the granularity of the view?

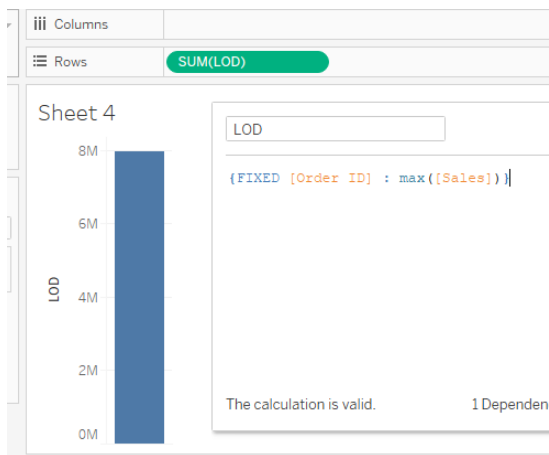
- a. Adding a dimension to the marks area
- b. Adding a measure to the marks area
- c. Adding a dimension as a filter
- d. Adding a measures as a filter

Adding a dimension to the marks area will increase the granularity of the view

33. Profit and Sales are continuous measures in the workbook. Order ID is a dimension. Which of the following will most likely not have further aggregation applied when it is added to the view?

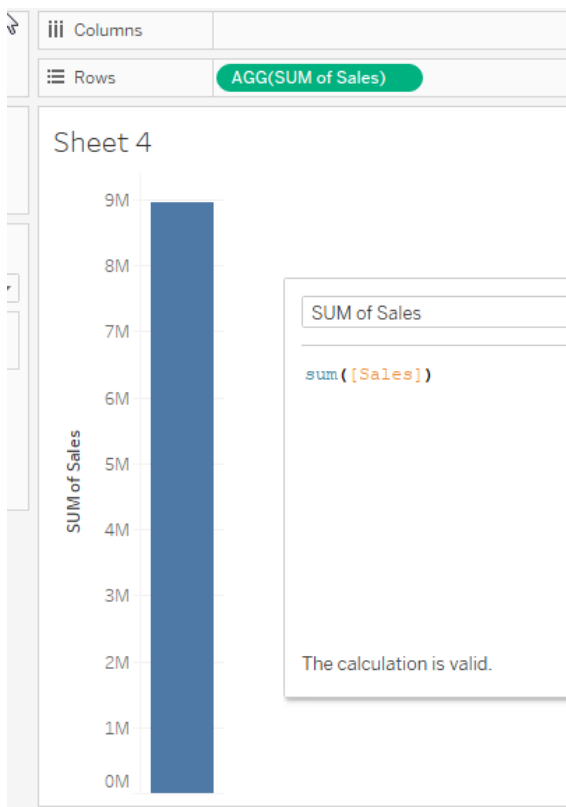
- a. {FIXED [Order ID] : max([Sales])}
- b. SUM([Sales])
- c. [Sales] – [Profit]
- d. Year([Order Date])

{FIXED [Order ID] : max([Sales])} is a level of detail calculation, and so it is not yet aggregated



The calculated field Year([Order Date]) will by default be a measure, so it will be aggregated when added to the view.

SUM([Sales]) is already aggregated, so it will not be further aggregated when added to the view. Instead Tableau will use AGG([Field Name]) to represent the fact that the field is already aggregated:

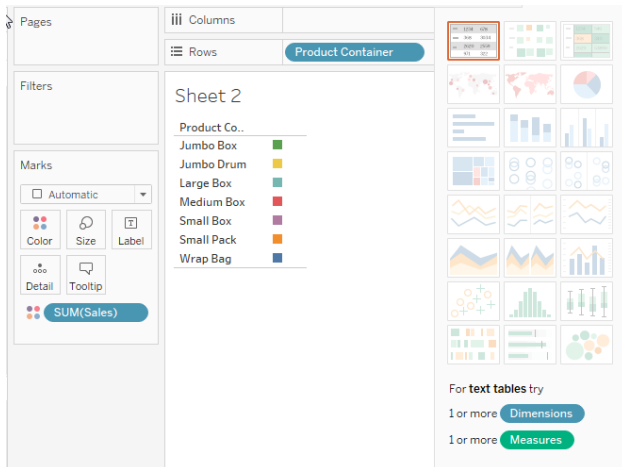


The calculated field [Sales] – [Profit] is a measure, but is not yet aggregated. It will be aggregated when it is added to the view.

34. Your view has a numeric field set as a discrete measure and a dimension. Which of the following visualizations can you create with these fields? (select all that apply)

- a. Line chart
- b. Text tables**
- c. Highlight table
- d. Histogram

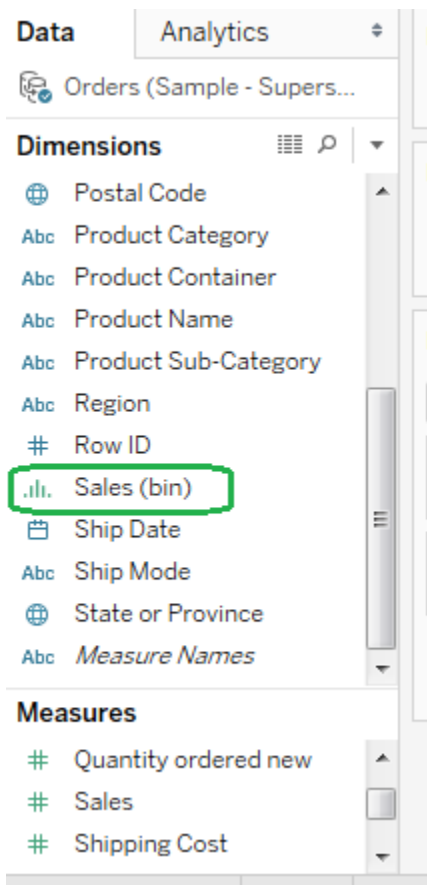
Because you have a discrete measure rather than a continuous measure, the visualizations available are more limited. The only option that is not greyed out is text table:



35. Which of the following fields is most likely to be a dimension?

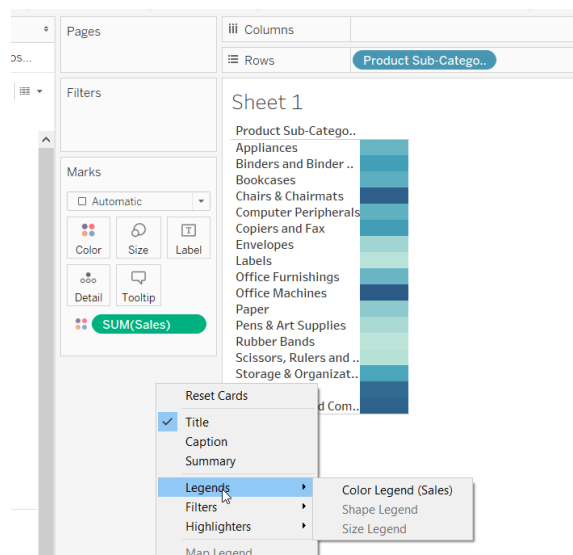
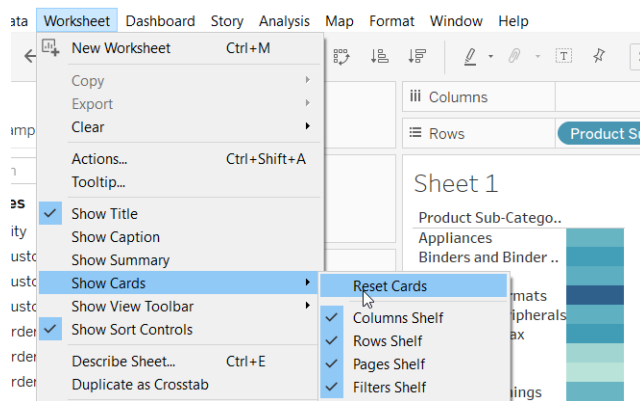
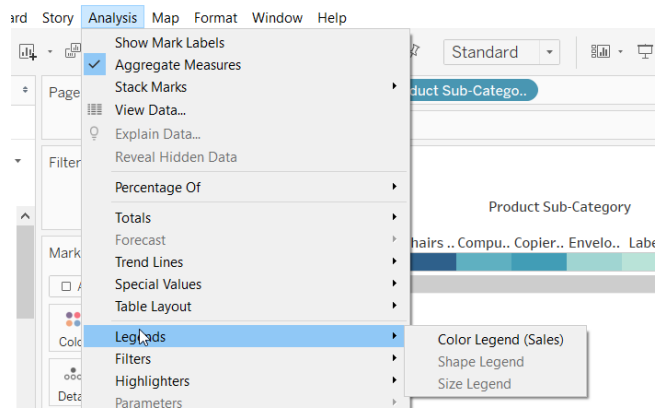
- a. Unique Order Count
- b. Sales (bin)
- c. Sales
- d. Measure Values

The Tableau documentation explains, “When you create bins from a measure you create a new dimension”  
[https://help.tableau.com/current/pro/desktop/en-us/calculations\\_bins.htm](https://help.tableau.com/current/pro/desktop/en-us/calculations_bins.htm)








36. A worksheet uses a color gradient, but the color legend is not shown. How would you show the legend? [select three]

- Click the color area on the marks card and check the Color Legend checkbox.
- Select **Analysis > Legends > Color Legend**.
- Select **Worksheet > Show Cards > Reset Cards**.
- Right-click in the space below the Marks card and select **Legends > Color Legend**.
- Select **Worksheet > Legend > Color Legend**



Solutions shown here <https://kb.tableau.com/articles/howto/displaying-color-legends>

37. Clicking which icon will allow you to publish a workbook to tableau online or the tableau server?

- a. 
- b. 
- c. 
- d. 
- e. 

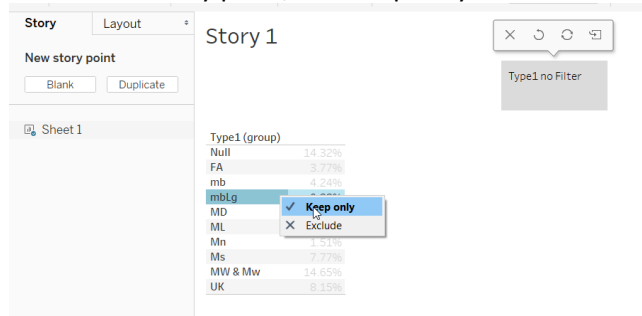
D is the correct answer. See here for steps to publish a workbook -

[https://help.tableau.com/current/pro/desktop/en-us/publish\\_workbooks\\_share.htm](https://help.tableau.com/current/pro/desktop/en-us/publish_workbooks_share.htm)

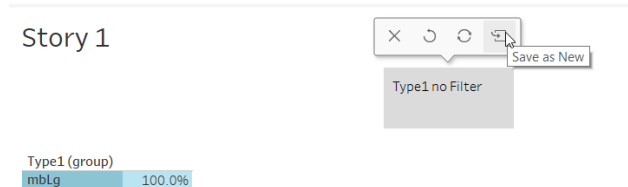
38. After modifying an existing story point, which option creates a new story point with the modifications, while preserving the existing story point before modifications?

- a. Right-click the existing story point, then select "Copy"
- b. Selecting "Save as New" on the existing story point
- c. The "Duplicate" button under "New Story Point" on the Story Pane
- d. The "New Story" option on the Story toolbar

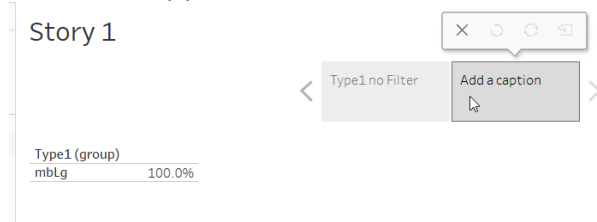
Start with a story point, and Keep Only when the value is mbLG



Save as New:



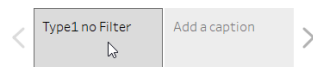
The new story point shows the modification. The filter limits to Type1 = mbLg:



The original story point is the *unmodified* version:

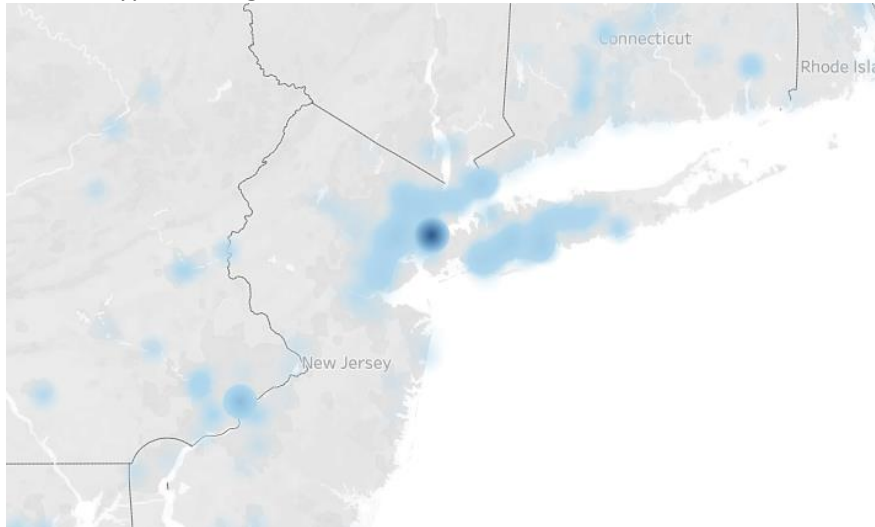


## Story 1



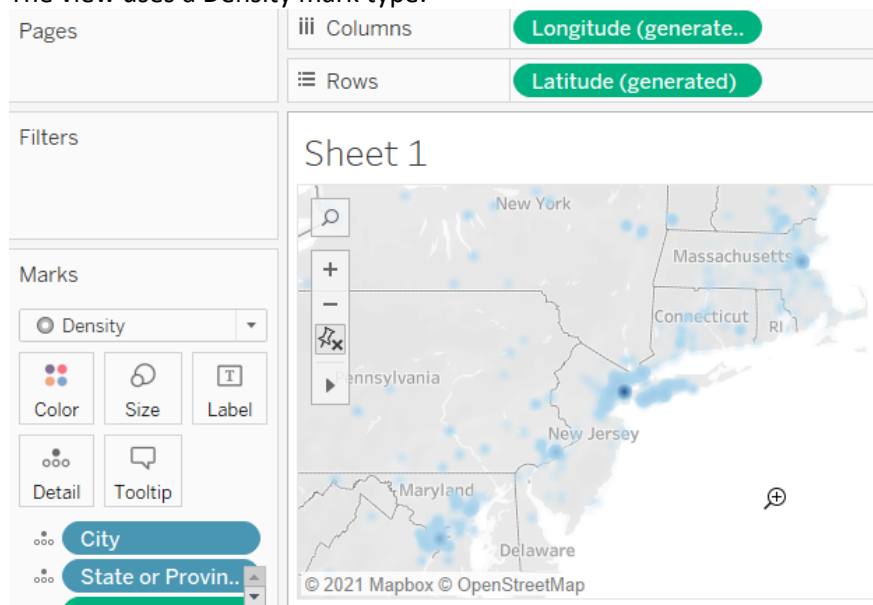
Type1 (group)	
Null	14.32%
FA	3.77%
mb	4.24%
mbLg	0.22%
MD	2.26%
ML	43.09%
Mn	1.51%
Ms	7.77%
MW & Mw	14.65%
UK	8.15%

39. Which mark type is being used in this view:



- a. Heat
- b. Density
- c. Map
- d. Automatic
- e. Polygon

The view uses a Density mark type:



This type of map is called a heatmap. More here [https://help.tableau.com/current/pro/desktop/en-us/maps\\_howto\\_heatmap.htm](https://help.tableau.com/current/pro/desktop/en-us/maps_howto_heatmap.htm)

40. Which of the following are options for the scope of a reference line? [select two]

- a. Entire Table
- b. Per Pane (down)
- c. Per Column
- d. Per Pane
- e. Per Row

The options are shown here:

