

Specialist Practice Exam #1 Solutions

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

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

Connecting to & Preparing Data

1. [Explain when to use a join versus a relationship] Which of the following is the best reason to use a relationship instead of a join?
 - a. You are working with multiple tables that you'd like to combine into a single table for analysis
 - b. You know that you'd like unmatched values to be dropped from the secondary tables
 - c. You wish to avoid data duplication when combining tables with different granularity
 - d. You are combining tables based on geographic fields

Explanation:

A is incorrect because relationships defer joins to the time and context of analysis rather than creating a single table for analysis.

B is incorrect because relationships act like outer joins unless you choose to filter out non-matches. See this post <https://onenumerator.biz/blog-1/2020/6/8/what-join-type-are-tableau-relationships-most-similar-to> for detail. The documentation explains that with relationships the "native level of detail" is preserved so that you won't need to deduplicate data in related tables using LOD expressions. With joins, a new row in the resultset is created each time the join criteria is satisfied, leading to duplication.

https://help.tableau.com/current/online/en-us/datasource_relationships_learnmorepage.htm

D is incorrect because relationships don't work with geographic fields.

<https://kb.tableau.com/articles/issue/Unable-to-Define-Relationships-Based-on-Calculated-Fields-or-Geographic-Fields>

2. [Add relationships to a data source] Relationships are created in which layer?
 - a. The data model Layer
 - b. The logical layer
 - c. The physical layer
 - d. The map layer

Explanation: Relationships are created in the logical layer, while joins are created in the physical layer. Double-clicking on the logical layer will take you to the physical layer.

https://help.tableau.com/current/online/en-us/datasource_datamodel.htm

3. Which of the following is the best reason to create a saved data source as a .TDS file
 - a. Those who wish to use the data do not have access to the underlying data.
 - b. You want to save the default field properties such as number formats and sort order.
 - c. You want to save a snapshot of the data that will not update even when the underlying data changes.
 - d. You need to apply an aggregation that takes too long when using a live connection.

Correct answer is B. TDS files save the data source metadata, such as the connection information, default field formatting, and sort order. They do not save the data source itself, and hence you should use this format if everyone who will use the data source has access to the underlying file or database defined in the connection information.

Documentation here: https://onlinehelp.tableau.com/current/pro/desktop/en-us/export_connection.html

4. [Add joins and unions] When creating a union between tables, what will happen if the field names do not match?
- a. Tableau will return an error message, explaining that you must modify the tables so that all tables used in the union have the same field names.
 - b. Tableau will automatically merge the fields, combining fields with similar field names.
 - c. **Fields in the union that do not have matching field names will contain null values.**
 - d. Fields with non-matching field names will be dropped, so that the union will contain only those fields with matching field names

Correct answer is C – if the field names do not match, the fields will be included in the UNION but will contain null values for the rows from the table that is missing the field.

<https://onlinehelp.tableau.com/current/pro/desktop/en-us/union.html>

5. [Explain when to use a join versus a relationship] In which of the following situations would an outer join be preferred to a blend?
- a. **when you need to include all rows from both tables, even when the join or blend criteria is not met**
 - b. when the data is at different level of granularity
 - c. when you need to append rows from one table to rows in another table
 - d. when the tables are stored in different databases

A is correct because an outer join will include all rows from both tables, even when the join criteria is not met, while a blend will not include rows from the secondary table unless there is a match on the linking field.

B is not correct because blends avoid duplication when the tables are at different levels of granularity, making them preferable to joins in some situations.

C is not correct because unions are for appending rows.

D is not correct because both blends and cross database joins can combine tables stored in different databases.

6. Which of the following uses a primary and secondary data source?
- a. Cross-database joins
 - b. Unions
 - c. Aggregation
 - d. **Blending**

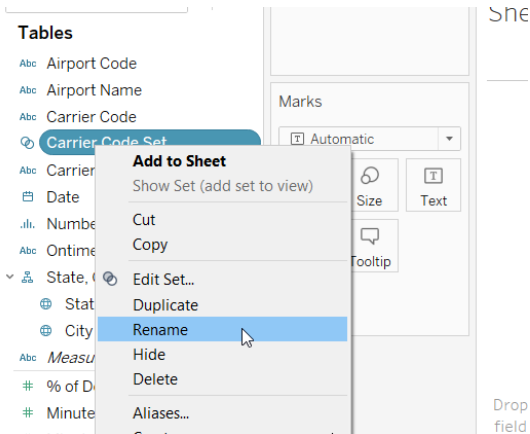
Correct answer is D. Data blending involves a primary and secondary data source.

https://onlinehelp.tableau.com/current/pro/desktop/en-us/multiple_connections.html

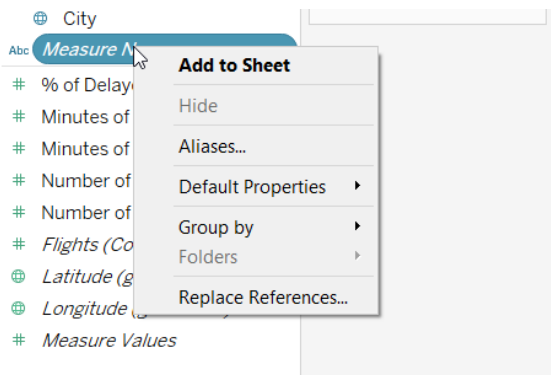
7. [Rename a data field] Which of the following can be renamed? [select 3]

- a. Field names
- b. Column values
- c. Parameters
- d. The *Measure Names* generated field
- e. Sets

You can confirm in Tableau that field names, parameters, and sets may be renamed.



Column values can be aliased but cannot be renamed. Generated fields such as measure names cannot be renamed:



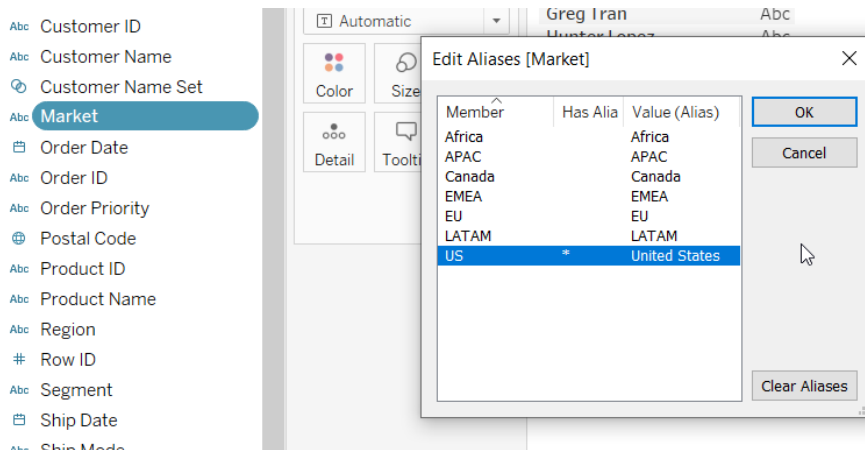
https://help.tableau.com/current/pro/desktop/en-us/howto_connect.htm#change-or-reset-field-names

8. [Assign an alias to a data value] Which of the following can have an alias?

- a. Field Names
- b. Values of a continuous measure
- c. Values of a discrete dimensions
- d. Values of a discrete measure
- e. Values of a date field

https://help.tableau.com/current/pro/desktop/en-us/datafields_fieldproperties_aliases_ex1editing.htm

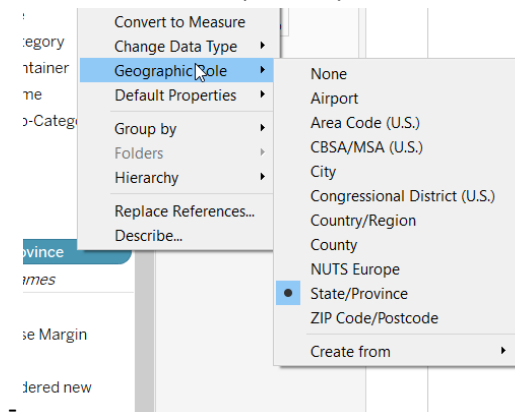
You can rename field names, but you cannot alias them. Aliases can be applied only to discrete dimension values.



9. [Assign a geographic role to a data field] Which of the following are predefined geographic roles? [select two]

- a. Airport
- b. Train terminal
- c. Seaport
- d. Geo code
- e. Zip code

See the list here https://help.tableau.com/current/pro/desktop/en-us/maps_geographicroles.htm or check Tableau

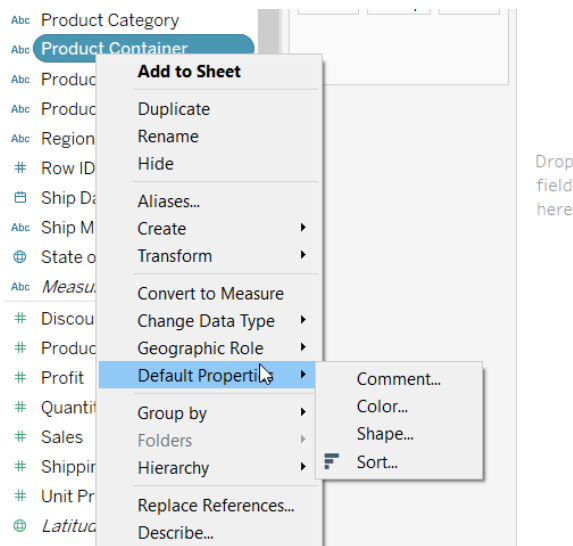


10. [Change default properties for a data field (number format, aggregation, color, date format, etc.)] Which of the following are default properties which can be assigned to a dimension? [select three]

- a. Shape
- b. Size
- c. Color
- d. Path

e. Sort

See the list here https://help.tableau.com/current/pro/desktop/en-us/datafields_fieldproperties.htm or try this in Tableau with a dimension:



Exploring & Analyzing Data

11. [Create sets by using marks and the data pane] You have a scatter plot showing sales and profit by product sub-category. You wish to create a set from a cluster of high values sub-categories. What steps should you take?
- Hold down the control key and click on the sub-categories of interest. Then right-click the data pane and select "Create set"
 - Highlight the sub-categories of interest. Then in the Marks card click "Set" and "Create Set"
 - Click and hold down the mouse, drawing a rectangle to select the sub-categories of interest. Right click and select 'create set'
 - Select the sub-categories in the color legend, then right click and select "set" then "Create Set"

Explanation - See the demo here: https://help.tableau.com/current/pro/desktop/en-us/sortgroup_sets_create.htm#create-a-fixed-set

12. [Display totals on a worksheet] A worksheet with a text table has the dimension PRODUCTS and the measure AVG(Discount). If totals are added to the worksheet, what default method will be used to calculate the totals?
- The total value of discount divided by the number of rows in the text table
 - The average of the values in the text table
 - The average of discount per row in the underlying data source
 - The sum of the values in the text table

Explanation: we see below an example with the default method used for the grand total

Pages

Columns

Rows

Product Name

Filters

Sub-Category: Fasten...

Product Name

Marks

Automatic

Color

Size

Text

Detail

Tooltip

AVG(Discount)

Sheet 3

Product Name

Acco Banker's Clasp.. 0.0800

Acco Clips to Go Bin.. 0.0400

Acco Glide Clips 0.0000

Acco Hot Clips Clips .. 0.1333

Grand Total 0.0824

The average of the values in the text table is $(.08+.04+0+.1333)/4 = .063325$, so the grand total is not the average of the values in the text table. Rather, it is the average of the values in the underlying data:

	Q	P	Q	R	S	T	U
1	Category	Sub-Ca	Product Name	Sales	Quantity	Discour	Profit
1589	Office Sup	Fasteners	Acco Clips to Go Binder Clips, 24 Clips in Two Sizes	10.65	3	0	5.0055
2374	Office Sup	Fasteners	Acco Hot Clips Clips to Go	2.632	1	0.2	0.8225
2412	Office Sup	Fasteners	Acco Clips to Go Binder Clips, 24 Clips in Two Sizes	5.68	2	0.2	1.917
3252	Office Sup	Fasteners	Acco Clips to Go Binder Clips, 24 Clips in Two Sizes	24.85	7	0	11.6795
3775	Office Sup	Fasteners	Acco Banker's Clasps, 5 3/4"-Long	6.912	3	0.2	2.3328
4369	Office Sup	Fasteners	Acco Hot Clips Clips to Go	10.528	4	0.2	3.29
4603	Office Sup	Fasteners	Acco Banker's Clasps, 5 3/4"-Long	11.52	4	0	5.4144
4656	Office Sup	Fasteners	Acco Banker's Clasps, 5 3/4"-Long	2.88	1	0	1.3536
4683	Office Sup	Fasteners	Acco Hot Clips Clips to Go	29.61	9	0	13.3245
5201	Office Sup	Fasteners	Acco Banker's Clasps, 5 3/4"-Long	2.304	1	0.2	0.7776
5408	Office Sup	Fasteners	Acco Clips to Go Binder Clips, 24 Clips in Two Sizes	10.65	3	0	5.0055
5458	Office Sup	Fasteners	Acco Glide Clips	19.6	5	0	9.604
7702	Office Sup	Fasteners	Acco Banker's Clasps, 5 3/4"-Long	17.28	6	0	8.1216
7789	Office Sup	Fasteners	Acco Hot Clips Clips to Go	7.896	3	0.2	2.4675
8016	Office Sup	Fasteners	Acco Hot Clips Clips to Go	3.29	1	0	1.4805
9335	Office Sup	Fasteners	Acco Clips to Go Binder Clips, 24 Clips in Two Sizes	14.2	4	0	6.674
9480	Office Sup	Fasteners	Acco Hot Clips Clips to Go	13.16	5	0.2	4.1125
Average: 0.082352941							

If you check the table here, https://help.tableau.com/current/pro/desktop/en-us/calculations_totals_grandtotal_turnon.htm#options-for-calculating-grand-totals you can confirm that the default aggregation used in the grand total for average is, "Shows the average of the values shown in the row or column."

13. For which of the following tasks would it make the most sense to use a parameter?
- Allow the user to choose between user to toggle between a dashboard view of the most recent extract or a live connection to the database
 - Allow the user to expand related dimensions. For example, to expand product categories to see the sub-categories and products within those categories.
 - Allow the user to change the measure shown in the view. For example, to switch from seeing sale per order to seeing the count of distinct customers.
 - Allow the user to view the top 10 products with the highest total sales value given the current filters.

Explanation: Answer A is incorrect because you can't use a parameter to make this change, you'd make it through Tableau's menus. B would be done through a hierarchy, not a parameter. C is correct because you could create a parameter with the different measures, and then a calculation that would use the measure specified by the parameter. https://help.tableau.com/current/pro/desktop/en-us/parameters_swap.htm D is incorrect because this would be done with sets and context filters, rather than a parameter.

14. In the Southern Region Superstore data, the Product Category, Product Subcategory, and Product Name might be combined using which of the following:

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

Correct Answer: C - Hierarchy. Hierarchies allow you combine similar fields while Groups and Sets combine values within a field. Parameters allow the user to change a value, which can then be used in calculations, filters, and reference lines.

15. Which chart type will best visualize the relationship between two continuous measures?

- a. Bar chart
- b. Scatter Plot
- c. Line Chart
- d. Stacked Bar

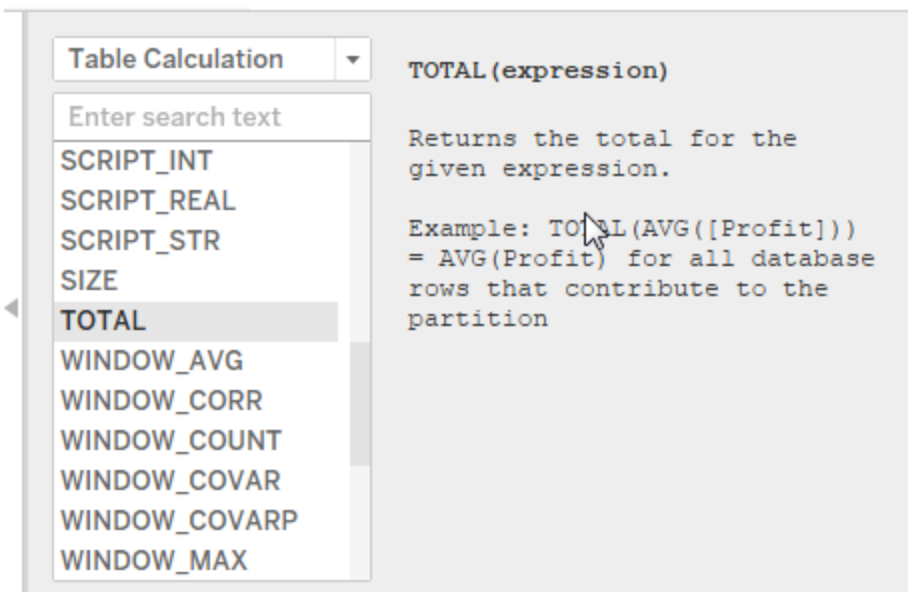
B – Scatter Plot. Scatter plots to visualize relationships between numerical variables. Bar charts to compare data across categories. Line charts compare numeric data over time. Stacked bar charts compare numeric data over two dimensions.

https://onlinehelp.tableau.com/current/pro/desktop/en-us/help.html#buildexamples_scatter.html?Highlight=scatter

16. Which of the following is a table calculation?

- a. SUM
- b. TOTAL
- c. AVG
- d. STDEV

B - Of these, only TOTAL is a table calculation:



17. You would like to create a view showing the top 5 products by sum of sales for a given state or states. A set is used to select the top 5 products by sales. What type of filter should be used with state?

- a. Multiselect Filter
- b. Dimension Filter
- c. Context Filter
- d. Wildcard Filter

You would like to filter on the state, and then select the top 5 products with the greatest sales from within the selected state. Therefore, you need a filter which will execute before the Set. Dimension filters execute after sets, so they are the wrong choice. If you make the filter on the state a context filter, Tableau will filter on the state, and then the set will determine the top 5 products by sales within the selected state.

More detail here: https://onlinehelp.tableau.com/current/pro/desktop/en-us/order_of_operations.html#DimtoCtxt

18. Bins can be created for which type of field?

- a. Dimension
- b. Discrete
- c. Continuous measure
- d. Date

Answer is C. A bin can be created on a continuous measure or numeric dimension
https://onlinehelp.tableau.com/current/pro/desktop/en-us/calculations_bins.html

19. [Create groups by using marks, headers, and the data pane] Which feature would be most helpful in combining all values of a field containing a given string?

- a. Set
- b. Bin
- c. Parameter
- d. Group
- e. Where clause

When you create a group, you can use the contains function to find values that share a common string. Here we are grouping customer names which include Alan.

Create Group [Customer Name]

Field Name: Customer Name (group)

Groups: Add to: [dropdown]

- Adam Barton
- Adam G Sawyer
- Adam McKinney
- Adam Saunders Gray
- Alan Atkins
- Alan Briggs
- Alan Chase
- Alan Griffith
- Albert Frost
- Albert Maxwell
- Albert Tyson
- Alex Barry
- Alex Hardinn

Group Rename Ungroup ☒ Show Add Location

☐ Include 'Other' << Find

Find members

Alan

Contains Range: (All)

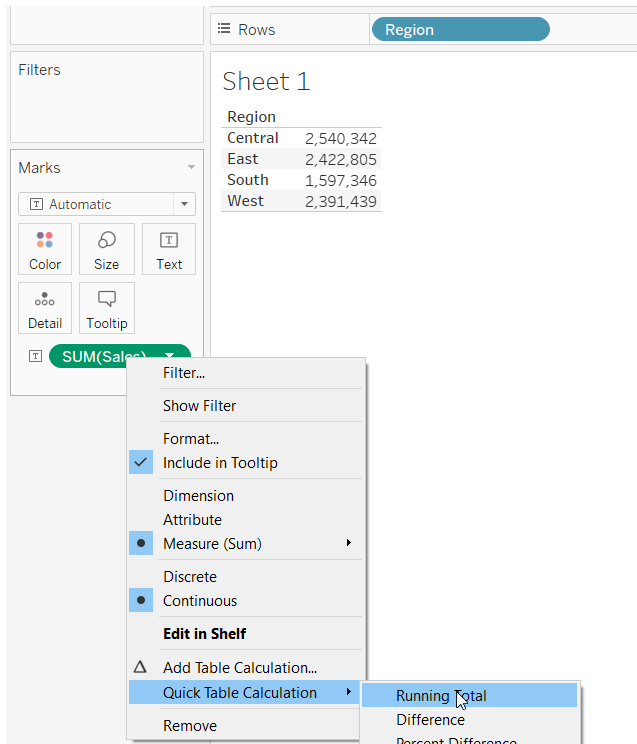
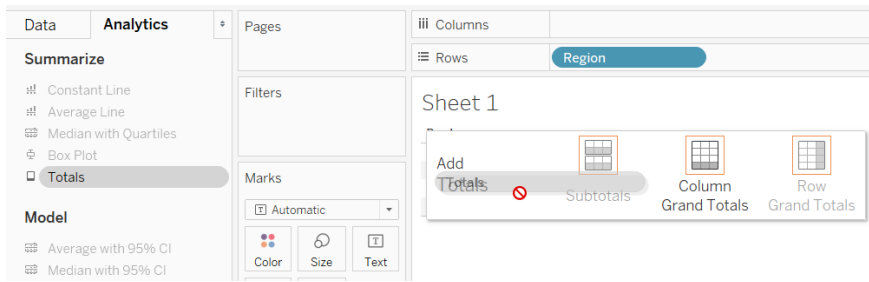
Find All Find Next

Reset OK Cancel Apply

20. [Use a quick table calculation] What steps would you follow to create a cumulative sum of the values shown in the view?

- a. On the analytics pane, click totals and drag into the view. The Add to totals menu will appear. Release on the "Running Total" option.
- b. On the analytics pane, click totals and drag into the view. The Add to totals menu will appear. Release on the "Cumulative sum" option.
- c. Right-click the pill for the measure in the view, select quick table calculation and then select "cumulative sum"
- d. Right-click the pill for the measure in the view, select quick table calculation and then select "running total"

The running total calculation will perform the desired calculation



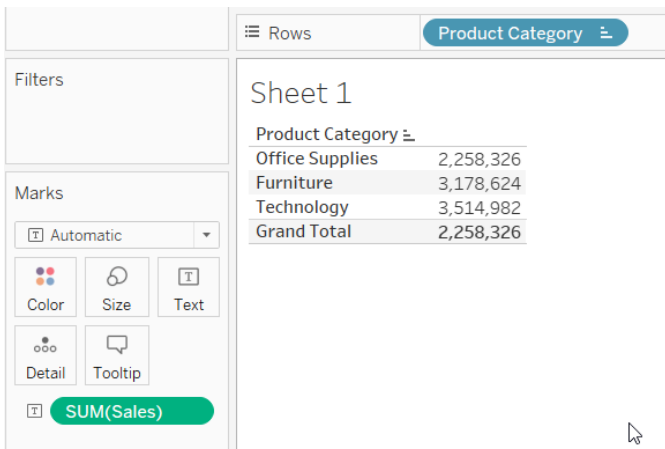
21. [Explain when to use a parameter] In which case would you most likely want to use a parameter?

- To allow the viewer to select which dates range to show on a line chart
- To allow the viewer to select which measure to show in a bar chart
- To group all values containing a specified string
- To make the value of a dimension display in the view with a different label

A can be done with a standard filter. C can be done with a calculation. D can be done with an alias.

This example shows how a parameter can be useful: https://help.tableau.com/current/pro/desktop/en-us/parameters_swap.htm

22. [Display totals on a worksheet] What Total All Using option was chosen for the following view?



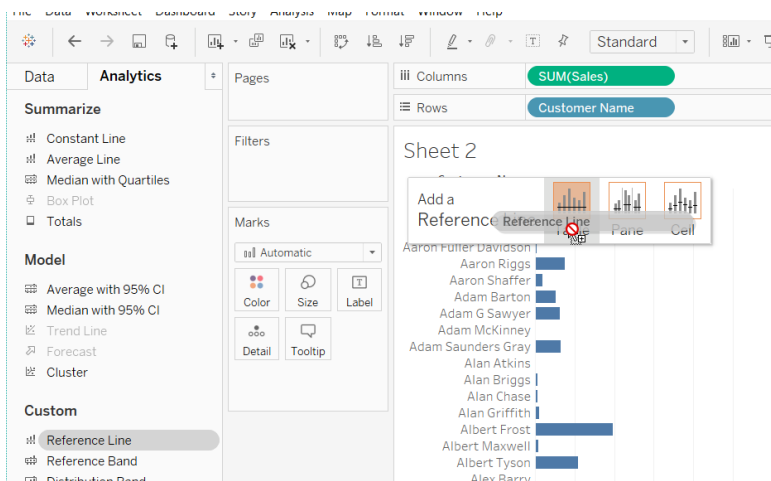
- First
- Sum
- Average
- Minimum
- Automatic

The value is the same as the first row, but first is not an option. The value shown for the grand total is the minimum of the values in the table, so the show all totals using Minimum option must have been chosen.

23. [Add a reference line] What steps can be used in creating a view with a reference line? [select two]

- On the analytics pane, click on reference line and drag into the view.
- On the toolbar, choose Analysis, then Reference Line and select Show Reference Line
- On the toolbar, choose Format, then Reference Line and change the value from None to solid.
- On the Show Me menu, select bullet graph
- On the Show Me menu, select box plot

A is correct as shown here



D is correct because bullet graphs include reference lines https://help.tableau.com/current/pro/desktop/en-us/qs_bullet_graphs.htm

24. [Add a manual or computed sort] What sort type should be used to have sort order Low, Medium, High?

- a. Computed
- b. Alphabetic
- c. Manual
- d. Data source order
- e. Nested

When you want values sorted in a particular order, using “Manual” allows you to specify that order. Alphabetic won’t work because the alphabetic order would be High, Low, Medium.

https://help.tableau.com/current/reader/desktop/en-us/reader_sort.htm

Sharing Insights

25. The most important items on a dashboard should be positioned where?

- a. Center
- b. Upper Left
- c. Upper Right
- d. Bottom

Answer: B – Upper Left. Place the most important view at the top of your dashboard, or in the upper left corner. When looking at a dashboard, your eye is usually drawn to that corner first.

26. You have a dashboard and you want to add a feature so that selecting an element on one of the worksheets on the dashboard causes a change on another worksheet in the same dashboard. What features will do this? (select all that apply)

- a. Filter Action
- b. Url Action
- c. Highlight Action
- d. Drilldown Action

Answer: A & C. A filter action can filter items on another worksheet, and a highlight action can highlight items on another worksheet.

27. What steps should you take to add a phone view to a dashboard?

- a. Instruct the those viewing the dashboard on mobile to put “m.” in front of the dashboard URL to get the mobile-friendly view.
- b. Select Layout, then adjust the dimensions until they are appropriate for a phone (750x1334)
- c. On the “Show Me” menu, click the Phone icon

- d. Select Device Preview, then select Phone for Device Type, then click the button labeled “Add Phone Layout”

Answer: D. You create a phone view by following the steps listed.

https://onlinehelp.tableau.com/current/pro/desktop/en-us/dashboards_dsd_create.html

Understanding Tableau Concepts

28. You start with a blank worksheet and add a continuous field to the row shelf. How will this new field change your view?

- a. It will add a horizontal axis
- b. It will add a horizontal header
- c. It will add a vertical axis
- d. It will add a vertical header

Answer: C - vertical axis

https://onlinehelp.tableau.com/current/pro/desktop/en-us/help.html#datafields_typesandroles.html?Highlight=discrete

29. You have a scatter plot showing sales on the x-axis and profit on the y-axis, with each dot representing a different product subcategory. You want to show how the points on the scatter plot vary based on Net Profit, a third continuous variable. Which would be most appropriate? (Select all that apply)

- a. Tooltip
- b. Label
- c. Size
- d. Color

Answer C & D: Size would be most appropriate, because with size it is clear that larger values are represented by larger points on the plot. This is easier for the eye to process than understanding which color or size is associated with the larger values than it is to read a label or tooltip value on each point in the scatter plot. The Visual Analysis Best Practices Guidebook explains, “a rule of thumb is to put the most important data on the X- or Y- axis and less important data on color, size, or shape.”

30. If you have bar chart with a single bar, but you want to subdivide that bar into multiple categories, what should you add to your view?

- a. A measure
- b. A dimension
- c. A discrete field
- d. A continuous field

The answer is B – you need to add a dimension to your view to subdivide the bar.

31. Which of the following fields will have AGG in front of it when you add it to the view?

- a. A calculated field with the formula SUM([Profit])
- b. A measure called Profit
- c. A date field
- d. A calculated field with the formula 5 * [Profit]

Answer: A, since this is a measure that has an aggregation already built in, when you add it to the view you will see AGG in front of the field name

32. A histogram shows the distribution of _____ data by creating bins that are _____.

- a. numeric, continuous
- b. discrete, continuous
- c. continuous, discrete
- d. date, discrete

Correct answer is C. A histogram uses bins to subdivide a continuous measure into a discrete bins.

33. Which of the following functions can be used on string to create a measure?

- a. SUM
- b. COUNTD
- c. +
- d. DATEDIFF

Answer B. Of these functions, only COUNTD will take a string and return a measure.

34. [Use color from the marks card] If a continuous measure with all positive values is added to the Color area of the Marks card, what is the default?

- a. A diverging color gradient
- b. A categorical palette
- c. A sequential color gradient
- d. A stepped color gradient

Explanation: If the values are all positive then a sequential color gradient will be used. If there are negative values then a diverging color gradient will be used. If the data is discrete a categorical palette will be used.

35. [Configure fonts] Which option can be used to change only the font size the numeric values shown in the view below? [select all that apply]

Tableau interface showing a pivot table view. The Columns shelf contains 'Measure Names' and 'Product Category'. The Rows shelf contains 'Product Sub-Category'. The Marks card is set to 'Automatic'. The view displays a table with columns for Product Sub-Category, Profit, Sales, Profit, and Sales. The data is summarized by Product Sub-Category.

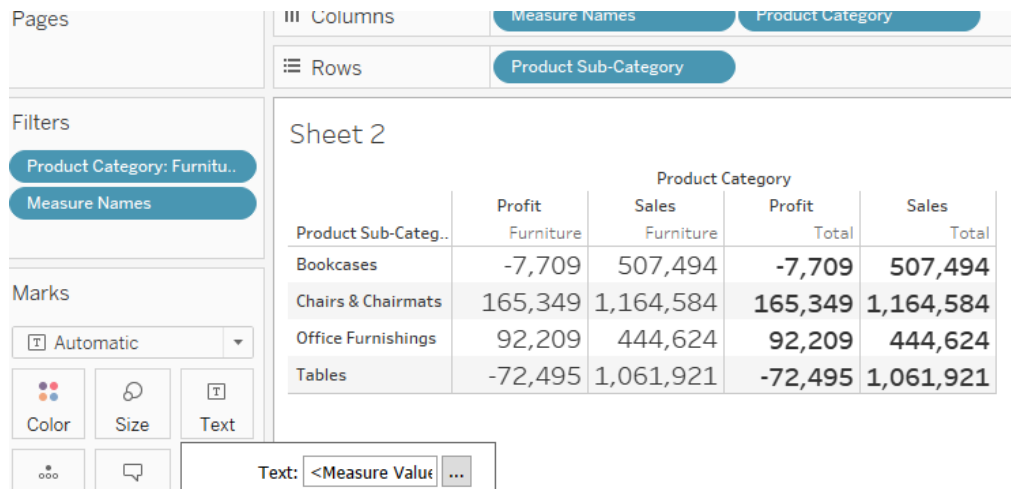
Product Sub-Category	Product Category			
	Profit	Sales	Profit	Sales
Bookcases	-7,709	507,494	-7,709	507,494
Chairs & Chairmats	165,349	1,164,584	165,349	1,164,584
Office Furnishings	92,209	444,624	92,209	444,624
Tables	-72,495	1,061,921	-72,495	1,061,921
Grand Total	177,354	3,178,624	177,354	3,178,624

- On the format menu, select Font and then make the change on the Measures dropdown
- Right click SUM(Profit) and SUM(Sales) and select Format
- Click Text on the Marks card
- On the format menu, select Font and then make the change on the Pane dropdown

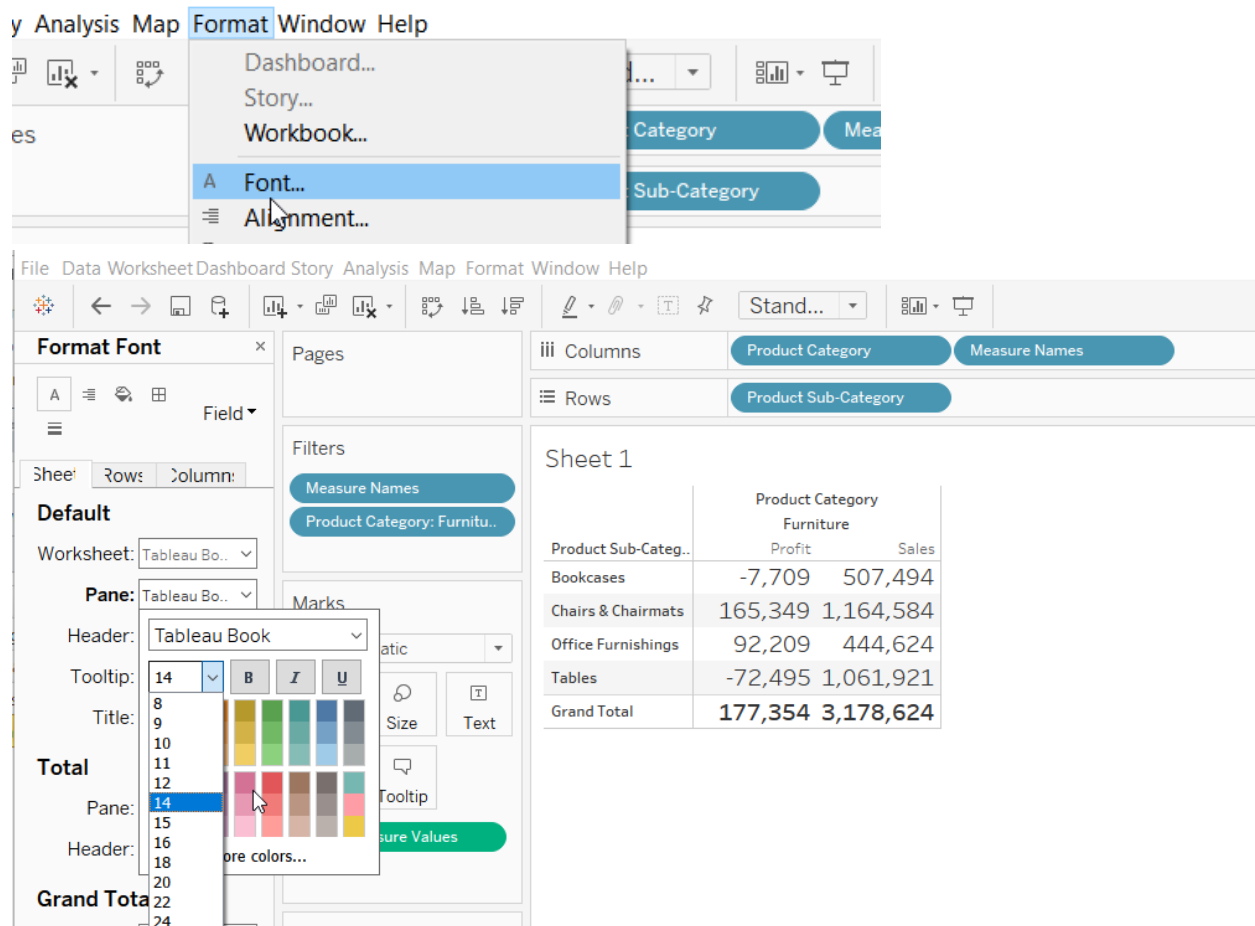
Explanation: Clicking on Text on the Marks card will allow you to adjust the font size for just the values in the view (also called marks)

Tableau interface showing the 'Edit Label' dialog box. The 'Text' field is set to '<Measure Values>'. The 'Font Size' dropdown is open, showing a list of font sizes from 8 to 72. The '14' font size is selected.

Click OK



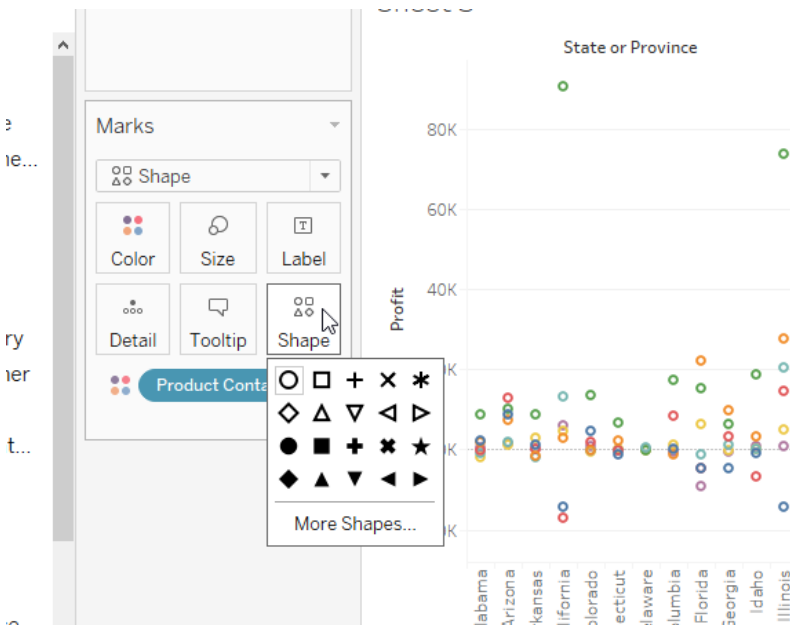
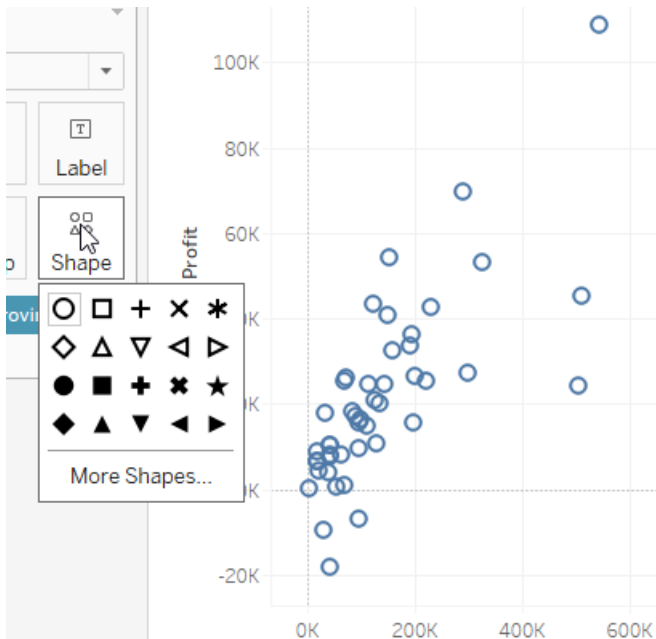
The font size can also be adjusted by selecting Font and then changing the font size for Pane.



36. [Format marks as shapes] Which of the following visualizations allow you to set the shape of marks?

- a. Scatter plots
- b. Heat maps
- c. Symbol Maps
- d. Circle views
- e. Packed bubbles

Explanation: Scatter plots and circle views have marks with shapes that can be adjusted:



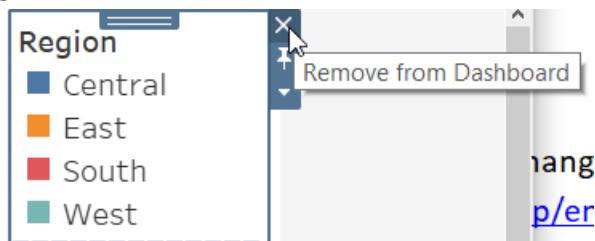
37. [Configure viz animations] Which of the following describes the effect of changing the filters for a sorted bar chart with sequential animation is turned on?
- The animation will show the bars reordering according to the sort, then show the bar sizes changing
 - The animation will show the bar sizes changing, then shows the bars reordering according to the sort
 - The animation shows the bar sizes changing and at the same time shows the bars reordering according to the sort
 - The sort order and bar size will change immediately without animation
- Explanation: Sequential animations will first change the size, then resort. See the demo here https://help.tableau.com/current/pro/desktop/en-us/formatting_animations.htm#sequential-animations
38. [Show and hide legends] Which of the following will remove a legend on a dashboard? [select three]
- Click the arrow on the legend and select "Hide card"
 - Click the x to remove it from the dashboard
 - Click the arrow on the legend and select "Remove from dashboard"

- d. Select the legend by clicking and drag it out of the dashboard canvas
- e. Select the legend's container, right click, and select "remove container."

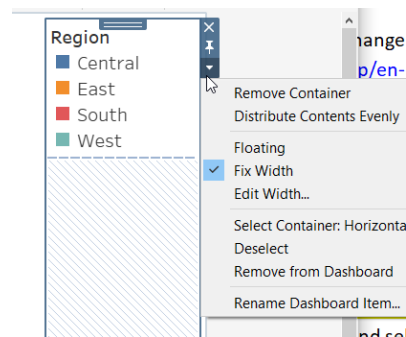
Explanation:

"Hide card" is an option on the worksheet, not on the dashboard.

Clicking X will remove



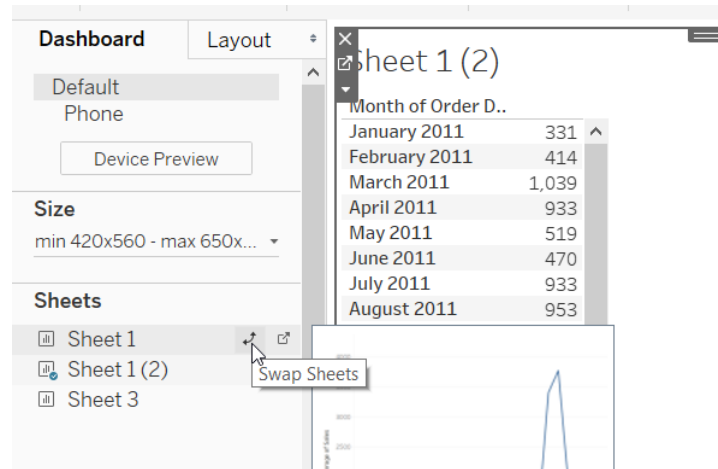
Down arrow will also work, as will dragging the legend off the canvas.



Removing the container will not remove the legend inside the container.

39. [Add worksheets to a dashboard] Which method can be used to replacing a worksheet in a dashboard with an different worksheet:
- a. Click the replace icon next to the new worksheet on the layout pane
 - b. Click the down arrow for more options on the current worksheet in the dashboard canvas, then select replace and select the alternate worksheet
 - c. Click the swap sheet icon next to the new worksheet on the dashboard pane
 - d. Select and drag the different worksheet on top of the worksheet in the dashboard canvas

Explanation: A is incorrect because there is no option to swap sheets on the layout pane. B is incorrect because there is no Replace option on the More Options menu. C is correct:



D is incorrect – dragging a different sheet worksheet onto the current worksheet in the dashboard canvas will add the new worksheet, but will not remove the old one.

40. [View and export underlying data] Which options can be used to export data as a CSV file?
- a. From the toolbar, select Worksheet, then Export then Export Data to CSV
 - b. On the Data Source page, select the table you want to export on the physical layer canvas, click the arrow, and select Export Data to CSV
 - c. On the Data Source page, select Data. Then select Export Data to CSV
 - d. Right-click the data source name in the data pane, then select "Export data to CSV"
 - e. On a worksheet tab, click the View Data icon in the Data pane, and click the Export All button.

C and E are correct as explained here https://help.tableau.com/current/pro/desktop/en-us/save_export_data.htm#data_csv. You can also right-click the data source name in the data pane to export to CSV.