We strongly encourage you to work through the example questions on your own prior to reviewing the solutions.

There may be multiple correct solutions to any given question for this exam. The solutions listed below are examples to be used for learning and reference. A workbook containing these solutions can be downloaded here.
Module 1 - Tableau Best Practices

Sample Question
The following views use the version 8 Superstore Subset (Excel) sample data. The goal is to compare measures within states across different regions. While each view may be correct, one might be a better choice over another. Provide an explanation of which view you would use and why. You can point out pros and cons for each views and how those pros and cons vary by audience. Would you create something different? If so, build an alternative view and explain why you made any design decisions.

Sample Answer
The Cross Tab can be useful as a lookup table for users interested in the data for specific States. It falls short when you want to draw attention to particular components of the data. In this case, the States aren’t even sorted, so there is no priority placed on either Sales or Profit.

For this kind of data, I would instead choose a map. Geospatial analysis engages the user audience draws attention to important data with the use of coloring and sizing. This particular map view draws my attention to the states that have bigger and darker circles, which is useful if I’m the manager of a region and want to see how the states within my region are doing. However, grouping the data into 4 maps takes up considerable space and doesn’t allow my audience to compare across the whole geography.

Tree Maps are very helpful with hierarchical categories, even though they don’t leverage the geographic nature of the fields. When viewing my Regions and States in this format, my eye prioritizes the upper left corners and moves down and across the areas of decreasing values. Including the Profit field as a color helps me determine where my regions are doing well and where the company is selling items at a loss. One concern I have with a tree map is that comparing the members is difficult since the size, shape, and position is relative to the marks around it.

As an alternative, I have created a more complete map for the data. By adding another axis, I can show the Regional separation in the background, and the State detail with Sales as size and Profit as color. The color is darker for Regions with the highest performance moving lighter as performance decreases. The downside is that this map requires a detailed legend to explain what the colors mean.
Sample Question 1
Look at the FAA Bird Strikes data and determine which species have the most strikes within each month. Do some species have more strikes in some months over others? Are there any species appearing in the top that are surprising? Note that you should not be confined to a specific number of species per month and should use a parameter to make a dynamic Top N.

Sample Answer
The Index function is used to help rank Species within each Month(Date) by the Number of Strikes. The species consistently experiencing the highest number of strikes is ‘Unknown birds’, but the top N does vary from month to month. A parameter was used to change the Top N from 2 to 20 species. The surprising component is that White-tailed deer show up in November in the Top 7, and in other months in the Top 20 (February, September, October, and December).

![Graph showing bird strikes by species and month]
Sample Question 2
Using both the FAA Bird Strikes and Flights data connections, calculate the strike rate (number of strikes divided by number of total flights) to see if the rate of wildlife strikes is increasing or decreasing over time.

Sample Answer
By calculating Strike Rate, we can normalize the data and see that the rate is trending upwards over time.
Sample Question 3
Using both the Sample - Superstore Subset (Excel) and the Sample –Coffee Chain (Access) data connections, show the Sum of Sales by year for each data source. In addition, show the total yearly sales for both lines of business in a single view. Use Superstore as your primary source.

Sample Answer
When working across data sources, you need to establish a relationship. Since the questions calls for information related to years, renaming the date fields to match is one approach. A better option is to create the relationship under Data > Edit Relationships. Showing the Sum of Sales between the sources may be simple, but due to null values in the Access data source, the calculation becomes difficult. This can be solved by several methods, two of which follow:

Calculation written in Superstore connection:

\[
\text{IFNULL(SUM([Sales]) + SUM([Sample - Coffee Chain (Access)].[Sales]),SUM([Sales]))}
\]

-OR-

Calculation written in Superstore connection:

\[
\text{SUM([Sample - Coffee Chain (Access)].[Sales])}
\]

Then another calculation written in Superstore connection:

\[
\text{SUM([Sales]) + ZN([Coffee Sales])}
\]
Sample Question

**Wildlife Strikes by Airplanes**: You have been asked to look for trends and seasonality to determine the likelihood of a plane coming in contact with wildlife. Using the FAA Bird Strikes and Flights data sets, create visualizations that will help you answer the following questions:

+ Where are these strikes most likely to occur?
+ Are there certain months that wildlife strikes become more likely?
+ Have the number of strikes per year been changing over time?
+ Does the number of flights have any effect on seasonal trends?
+ Combine views into a dashboard that allows users to explore the data themselves.

**Sample Answer**

Wildlife strikes seem to occur most often in California and Texas. This could be because California and Texas also have the highest number of flights.

The months of July through October have the highest likelihood of a strike, so it seems that there is seasonality related to the strikes. This could be due to migratory patterns of birds as they fly south to warmer weather in the winter. It also appears that, although the number of strikes seems to vary by season, the number of flights stays fairly consistent, which indicates that the seasonal number of plane flights must not have an impact on likelihood of a wildlife strike.

At a yearly level, the data indicates that the number of flights has been increasing (despite the dip in 2001-2002 due to 9/11) up until 2007. From 2007 onward, the number of flights decreased, while the number of bird strikes continued to increase. This raises the question: are bird strikes actually increasing, or, has bird strike reporting improved? This dashboard allows users to drill into specific states to evaluate seasonality.