VCEûp

Exam Code: PL-300
Exam Name: Microsoft Power BI Data Analyst
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VCEûp

Topic 01

QUESTION 1
Topic 1, Litware, Inc. Case Study
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Overview
Litware, Inc. is an online retailer that uses Microsoft Power BI dashboards and reports.
The company plans to leverage data from Microsoft SQL Server databases, Microsoft Excel files, text files, and several other data sources.
Litware uses Azure Active Directory (Azure AD) to authenticate users.
- Existing Environment
Sales Data
Litware has online sales data that has the SQL schema shown in the following table.

Table name	Column name	Data type
Sales_Region	region_id	Integer
	name	Varchar
Region_Manager	region_id	Integer
	manager_id	Integer
Sales_Manager	sales_manager_id	Integer
	name	Varchar
	username	Varchar
Sales	sales_id	Integer
	sales_date_id	Integer
	sales_amount	Floating
	customer_id	Integer
	sales_ship_date_id	Integer
	region_id	Varchar
Customer_Date	customer_id	Integer
	first_name	Varchar
	last_name	Varchar
Date	date_id	Integer
	date	Date
	month	Integer
	week	Integer
	year	Integer
Weekly_Returns	week_id	Integer
	total_returns	Floating
	sales_region_id	Varchar
Targets	target_id	Integer
	sales_target	Decimal
	date_id	Integer
	region_id	Integer

In the Date table, the dateid column has a format of yyyymmdd and the month column has a format of yyyymm. The week column in the Date table and the weekid column in the Weekly_Returns table have a format of yyyyww. The regionid column can be managed by only one sales manager.
Data Concerns
You are concerned with the quality and completeness of the sales data. You plan to verify the sales data for negative sales amounts.
Reporting Requirements
Litware identifies the following technical requirements:
• Executives require a visual that shows sales by region.
• Regional managers require a visual to analyze weekly sales and returns.
• Sales managers must be able to see the sales data of their respective region only.
• The sales managers require a visual to analyze sales performance versus sales targets.
• The sale department requires reports that contain the number of sales transactions.
• Users must be able to see the month in reports as shown in the following example: Feb 2020.
• The customer service department requires a visual that can be filtered by both sales month and ship month independently.

A.

Correct Answer:
Section: (none)
Explanation

Explanation/Reference:

QUESTION 2
You need to address the data concerns before creating the data model. What should you do in Power Query Editor?

A. Select Column distribution.
B. Select the sales_amount column and apply a number filter.
C. Select Column profile, and then select the sales_amount column.
D. Transform the sales_amount column to replace negative values with 0.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 3
You need to create a calculated column to display the month based on the reporting requirements.
Which DAX expression should you use?

A. FORMAT('Date'[date], "MMM YYYY")
B. FORMAT('Date' [date], "M YY")
C. FORMAT('Date'[date_id], "MMM") & "" & FORMAT('Date'[year], "#")
D. FORMAT('Date' [date_id], "MMM YYYY")

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 4
You need to create the required relationship for the executive's visual. What should you do before you can create the relationship?

A. Change the data type of Sales[region_id] to Whole Number.
B. In the Sales table, add a measure for sum(sales_amount).
C. Change the data type of sales[sales_id] to Text.
D. Change the data type of sales [region_id] to Decimal Number.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario: Executives require a visual that shows sales by region.
Need to change the sales_id column from Varchar to Whole Number (Integer).

QUESTION 5
What should you create to meet the reporting requirements of the sales department?

A. a measure that uses a formula of SUM (Sales [sales_id])

B. a calculated column that use a formula of COUNTA(sales [sales_id])

C. a measure that uses a formula of COUNTROWS (Sales)

D. a calculated column that uses a formula of SUM (Sales [sales_id])

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The sale department requires reports that contain the number of sales transactions.
The COUNTROWS function counts the number of rows in the specified table, or in a table defined by an expression.
Reference:
https://docs.microsoft.com/en-us/dax/countrows-function-dax

QUESTION 6
You need to create a relationship between the Weekly_Returns table and the Date table to meet the reporting requirements of the regional managers. What should you do?

A. In the Weekly.Returns table, create a new calculated column named date-id in a format of yyyymmdd and use the calculated column to create a relationship to the Date table.

B. Add the Weekly_Returns data to the Sales table by using related DAX functions.

C. Create a new table based on the Date table where date-id is unique, and then create a many-tomany relationship to Weekly_Return.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario: Region managers require a visual to analyze weekly sales and returns.
To relate the two tables we need a common column.

QUESTION 7
You need to provide a solution to provide the sales managers with the required access.
What should you include in the solution?

A. Create a security role that has a table filter on the Sales_Manager table where username = UserName()

B. Create a security role that has a table filter on the Region_Manager table where sales_manager_id = UserPrincipalName().

C. Create a security role that has a table filter on the Sales_Manager table where name = UserName().

D. Create a security role that has a table filter on the Sales_Manager table where username = sales_manager_id.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
https://powerbi.microsoft.com/en-us/blog/using-username-in-dax-with-row-level-security/

QUESTION 8
You need to create relationships to meet the reporting requirements of the customer service department.
What should you create?

A. an additional date table named ShipDate, a one-to-many relationship from Sales[sales_date_id] to Date[date_id], and a one-to-many relationship from Sales[sales_ship_date_id] to ShipDate[date_id]

B. an additional date table named ShipDate, a many-to-many relationship from Sales[sales_date_id] to Date[date_id], and a many-to-many relationship from Sales[sales_ship_date_id] to ShipDate[date_id]

C. a one-to-many relationship from Date[date_id] to Sales[sales_date_id] and another one-to-many relationship from Date[date_id] to Weekly_Returns[week_id]

D. a one-to-many relationship from Sales[sales_date_id] to Date[date_id] and a one-to-many relationship from Sales[sales_ship_date_id] to Date[date_id]

E. a one-to-many relationship from Date[date_id] to Sales[sales_date_id] and another one-to-many relationship from Date[date_id] to Sales[sales_ship_date_id]

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario: The customer service department requires a visual that can be filtered by both sales month and ship month independently.
Reference:
https://docs.microsoft.com/en-us/power-bi/transform-model/desktop-relationships-understand
Topic 2, Contoso Ltd, Case Study
Overview
This is a case study. Case studies are not timed separately. You can use as much exam time as you would like to complete each case. However, there may be additional case studies and sections on this exam. You must manage your time to ensure that you are able to complete all questions included on this exam in the time provided.
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Question button to return to the question.
Existing Environment
Contoso, Ltd. is a manufacturing company that produces outdoor equipment Contoso has quarterly board meetings for which financial analysts manually prepare Microsoft Excel reports, including profit and loss statements for each of the company's four business units, a company balance sheet, and net income projections for the next quarter.
Data and Sources
Data for the reports comes from three sources. Detailed revenue, cost and expense data comes from an Azure SQL database. Summary balance sheet data comes from Microsoft Dynamics 365 Business Central. The balance sheet data is not related to the profit and loss results, other than they both relate to dates.
Monthly revenue and expense projections for the next quarter come from a Microsoft SharePoint Online list. Quarterly projections relate to the profit and loss results by using the following shared dimensions: date, business unit, department, and product category.
Net Income Projection Data
Net income projection data is stored in a SharePoint Online list named Projections in the format shown in the following table.

MonthStartDate	Projection type	ProductCategory	Department	Projection
1-Apr-20	Revenue	Bikes	N/A	200,000
1-Apr-20	Revenue	Components	N/A	250,000
1-Apr-20	Revenue	Clothing	N/A	300,000
1-Apr-20	Revenue	Accessories	N/A	150,000
1-May-20	Revenue	Bikes	N/A	200,000
1-May-20	Revenue	Components	N/A	250,000
1-Apr-20	Expense	Bikes	Bike Manufacture	50,000
1-Apr-20	Expense	Bikes	Bike Sales	3,333

Revenue projections are set at the monthly level and summed to show projections for the quarter.
Balance Sheet Data
The balance sheet data is imported with final balances for each account per month in the format shown in the following table.

AccountCategory	Account	Month	Year	BalanceAmount
Current assets	Cash and cash equivalents	3	2020	20,289
Current assets	Inventories	3	2020	4,855
Long-term liabilities	Long-term debt	3	2020	50,207
Current assets	Cash and cash equivalents	2	2020	28,209
Current assets	Inventories	2	2020	5,845
Long-term liabilities	Long-term debt	2	2020	49,887
Current assets	Cash and cash equivalents	1	2020	25,567
Current assets	Inventories	1	2020	65,998
Long-term liabilities	Long-term debt	1	2020	46,124

There is always a row for each account for each month in the balance sheet data.
Dynamics 365 Business Central Data
Business Central contains a product catalog that shows how products roll up to product categories, which roll up to business units. Revenue data is provided at the date and product level. Expense data is provided at the date and department level.
Business Issues
Historically, it has taken two analysts a week to prepare the reports for the quarterly board meetings.
Also, there is usually at least one issue each quarter where a value in a report is wrong because of a bad cell reference in an Excel formula. On occasion, there are conflicting results in the reports because the products and departments that roll up to each business unit are not defined consistently.
Planned Changes
Contoso plans to automate and standardize the quarterly reporting process by using Microsoft Power BI. The company wants to how long it takes to populate reports to less than two days. The company wants to create common logic for business units, products, and departments to be used across all reports, including, but not limited, to the quarterly reporting for the board.
Technical Requirements
Contoso wants the reports and datasets refreshed with minimal manual effort The company wants to provide a single package of reports to the board that contains custom navigation and links to supplementary information.
Maintenance, including manually updating data and access, must be minimized as much as possible.
Security Requirements
The reports must be made available to the board from powerbi.com. A mail-enabled security group will be used to share information with the board.
The analysts responsible for each business unit must see all the data the board sees, except the profit and loss data, which must be restricted to only their business unit's data. The analysts must be able to build new reports from the dataset that contains the profit and loss data, but any reports that the analysts build must not be included in the quarterly reports for the board. The analysts must not be able to share the quarterly reports with anyone.
Report Requirements
You plan to relate the balance sheet to a standard date table in Power BI in a many-to-one relationship based on the last day of the month. At least one of the balance sheet reports in the quarterly reporting package must show the ending balances for the quarter, as well as for the previous quarter.
Projections must contain a column named RevenueProjection that contains the revenue projection amounts. A relationship must be created from Projections to a table named Date that contains the columns shown in the following table.

Name	Data type	Example
Date	Date	4-Apr-2020
Month	Integer	20,2004
Month Name	Text	February
Quarter	Integer	20,202
Year	Integer	2,020

The relationships between products and departments to business units must be consistent across all reports.
The board must be able to get the following information from the quarterly reports:
• Revenue trends over time
• Ending balances for each account
• A comparison of expenses versus projections by quarter
• Changes in long-term liabilities from the previous quarter
• A comparison of quarterly revenue versus the same quarter during the prior year

QUESTION 9
HOTSPOT
You need to create a visualization to meet the reporting requirements of the sales managers.
How should you create the visualization? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

Hot Area:

Visualization type:
```
Card
Donut chart
Gauge
Key influencers
KPI
```

Indicator:
```
Date[month]
Sales[sales_amount]
Sales[sales_id]
Targets[sales_target]
Weekly_Returns[total_returns]
```
hese are the selections for Indicator

Trend axis:
```
Date[month]
Sales[sales_amount]
Sales[sales_id]
Targets[sales_target]
Weekly_Returns[total_returns]
```

Target goals:
```
Date[month]
Sales[sales_amount]
Sales[sales_id]
Targets[sales_target]
Weekly_Returns[total_returns]
```

Correct Answer:

Visualization type:
```
Card
Donut chart
Gauge
Key influencers
KPI
```

Indicator:
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Target goals:
```
Date[month]
Sales[sales_amount]
Sales[sales_id]
Targets[sales_target]
Weekly_Returns[total_returns]
```

Section: (none)
Explanation

Explanation/Reference:
Scenario: The sales managers require a visual to analyze sales performance versus sales targets.
Box 1: KPI
A Key Performance Indicator (KPI) is a visual cue that communicates the amount of progress made toward a measurable goal.
Box 2: Sales[sales_amount]
Box 3: Date[month]
Time > FiscalMonth. This value will represent the trend.
Box 4: Targets[sales_target]
Reference:
https://docs.microsoft.com/en-us/power-bi/visuals/power-bi-visualization-kpi

Topic 02

QUESTION 1
Topic 2, Contoso Ltd, Case Study
Overview
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Report Requirements
You plan to relate the balance sheet to a standard date table in Power BI in a many-to-one relationship based on the last day of the month. At least one of the balance sheet reports in the quarterly reporting package must show the ending balances for the quarter, as well as for the previous quarter.
Projections must contain a column named RevenueProjection that contains the revenue projection amounts. A relationship must be created from Projections to a table named Date that contains the columns shown in the following table.

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Month	Integer	20,2004
Month Name	Text	February
Quarter	Integer	20,202
Year	Integer	2,020

The relationships between products and departments to business units must be consistent across all reports.
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• Revenue trends over time
• Ending balances for each account
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• Changes in long-term liabilities from the previous quarter
• A comparison of quarterly revenue versus the same quarter during the prior year

A.

Correct Answer:
Section: (none)
Explanation

Explanation/Reference:

QUESTION 2
You need to recommend a strategy to consistently define the business unit, department, and product category data and make the data usable across reports.
What should you recommend?

A. Create a shared dataset for each standardized entity.
B. Create dataflows for the standardized data and make the dataflows available for use in all imported datasets.
C. For every report, create and use a single shared dataset that contains the standardized data.
D. For the three entities, create exports of the data from the Power BI model to Excel and store the data in Microsoft OneDrive for others to use as a source.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 3
support the reports?

A. two imported datasets
B. a single DirectQuery dataset

C. two DirectQuery datasets

D. a single imported dataset

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
"The analysts responsible for each business unit must see all the data the board sees, except the profit and loss data, which must be restricted to only their business unit's data. The analysts must be able to build new reports from the dataset that contains the profit and loss data" => one dataset and two separate workspaces Reason: All data can be imported into one dataset also if these are two logical models. Shared dimensions can be reconsumed in both models. Reports and additional materials can be shared to the board with an app. The "profit and loss" data model needs RLS for the analysts and the analysts must have just read access to the original workspace. In a separate workspace with contributer (or more rights) they can create new reports (with live connection to the dataset). It is also stated that the new reports mustn't be shared so therefore no need to include them into the app. Import vs. DirectQuery: Due to RLS requirements an imported dataset is needed.
It is not possible with file sources and Sharepoint lists.

QUESTION 4
You plan to develop a Power BI report that has a bar chart to display the number of customers by location. You have a table named Customer that has the following columns:
• Customer ID
• CustomerName
• Address
• City
• ProvState
• Country
You need to allow users to drill down by location. The report will display the number of each customer by Country, and drill down to ProvState, and then to City. How should you configure the drill down in the bar chart?

A. In the Value field, add Country. In the Legend field, add ProvState at the top, followed by City.

B. In the Legend field, add Country. In the Axis field, add ProvState at the top, followed by City.

C. In the Axis field, add Country at the top, followed by ProvState, and then City.

D. In the Value field, add Country at the top, followed by ProvState, and then City.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Reference:
https://docs.microsoft.com/en-us/power-bi/guided-learning/visualizations#step-18
https://docs.microsoft.com/en-us/power-bi/power-bi-visualization-drill-down

QUESTION 5
Which DAX expression should you use to get the ending balances in the balance sheet reports?

A. CALCULATE (
    SUM(BalanceSheet [BalanceAmount]),
    DATESQTD('Date'[Date])
)
B. CALCULATE (
    SUM(BalanceSheet [BalanceAmount]),
    LASTDATE('Date'[Date])
)
C. FIRSTNONBLANK ('Date' [Date]
    SUM(BalanceSheet[BalanceAmount])
)
D. CALCULATE (
    MAX(BalanceSheet[BalanceAmount]),
    LASTDATE('Date' [Date])
)

Correct Answer: A

Explanation/Reference:
Explanation:
Scenario: At least one of the balance sheet reports in the quarterly reporting package must show the ending balances for the quarter, as well as for the previous quarter.
DATESQTD returns a table that contains a column of the dates for the quarter to date, in the current context.
Reference:
https://docs.microsoft.com/en-us/dax/datesqtd-function-dax

QUESTION 6
Which two types of visualizations can be used in the balance sheet reports to meet the reporting goals? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. a line chart that shows balances by quarter filtered to account categories that are long-term liabilities.
B. a clustered column chart that shows balances by date (x-axis) and account category (legend) without filters.
C. a clustered column chart that shows balances by quarter filtered to account categories that are long-term liabilities.
D. a pie chart that shows balances by account category without filters.
E. a ribbon chart that shows balances by quarter and accounts in the legend.

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
https://docs.microsoft.com/en-us/power-bi/visuals/power-bi-visualization-types-for-reports-and-qand-a

QUESTION 7
DRAG DROP
You need to create a DAX measure in the data model that only allows users to see projections at the appropriate levels of granularity.
How should you complete the measure? To answer, drag the appropriate values to the correct targets. Each value may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.
NOTE: Each correct selection is worth one point.

Select and Place:

Correct Answer:

Values

AND
KEEPFILTERS
SUMX

Answer Area

```
Total Projected Revenue =
IF        (
    NOT ( ISFILTERED   ( 'Date'[Date] ) ),
    SUM       ( Projection[Revenue Projection] )
)
```

Section: (none)
Explanation

Explanation/Reference:
Scenario: Revenue projections are set at the monthly level and summed to show projections for the quarter.
Box 1: IF
Box 2: ISFILTERED
ISFILTERED returns TRUE when columnName is being filtered directly. If there is no filter on the column or if the filtering happens because a different column in the same table or in a related table is being filtered then the function returns FALSE.
Box 3: SUM
Reference:
https://docs.microsoft.com/en-us/dax/isfiltered-function-dax

QUESTION 8
HOTSPOT
You need to calculate the last day of the month in the balance sheet data to ensure that you can relate the balance sheet data to the Date table. Which type of calculation and which formula should you use? To answer, select the appropriate options in the answer are a. NOTE: Each correct selection is worth one point.

Hot Area:
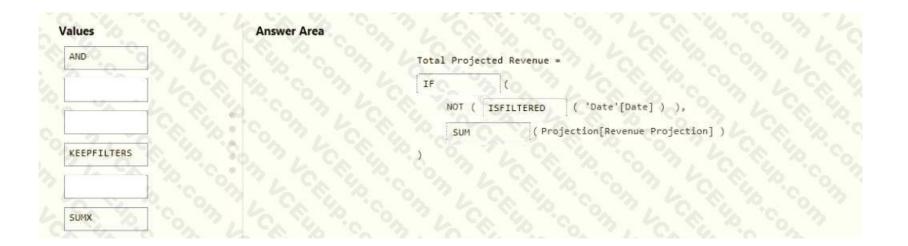
Answer Area

Type of calculation:

A DAX calculated column
A DAX calculated measure
An M custom column

Formula:

Date.EndOfMonth(#date([Year], [Month], 1))
Date.EndOfQuarter(#date([Year], [Month], 1))
ENDOFQUARTER(DATE('BalanceSheet'[Year],BalanceSheet[Month],1),0)

Correct Answer:

Answer Area

Type of calculation:

A DAX calculated column
A DAX calculated measure
An M custom column

Formula:

Date.EndOfMonth(#date([Year], [Month], 1))
Date.EndOfQuarter(#date([Year], [Month], 1))
ENDOFQUARTER(DATE('BalanceSheet'[Year],BalanceSheet[Month],1),0)

Section: (none)
Explanation

Explanation/Reference:
Box 1: A DAX Calculated measure
Box 2: Date.EndofQuarter(#date([Year],[Mont],1))

ENDOFQUARTER returns the last date of the quarter in the current context for the specified column of dates.
The following sample formula creates a measure that returns the end of the quarter, for the current context.
= ENDOFQUARTER(DateTime[DateKey])
Reference:
https://docs.microsoft.com/en-us/dax/endofquarter-function-dax

QUESTION 9
HOTSPOT
You need to grant access to the business unit analysts.
What should you configure? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Permissions required in powerbi.com:	Access permissions to an app
	The Member role to the workspace
	The Viewer role to the workspace

Permissions for the profit and loss dataset:	Build
	Delete
	Reshare

Correct Answer:

Answer Area

Permissions required in powerbi.com:	Access permissions to an app
	The Member role to the workspace
	The Viewer role to the workspace

Permissions for the profit and loss dataset:	**Build**
	Delete
	Reshare

Section: (none)
Explanation

Explanation/Reference:
Box 1: The Viewer role to the workspace
The Viewer role gives a read-only experience to its users. They can view dashboards, reports, or workbooks in the workspace, but can't browse the datasets or dataflows. Use the Viewer role wherever you would previously use a classic workspace set to "Members can only view Power BI content".

Capability	Admin	Member	Contributor	Viewer
Update and delete the workspace.	x			
Add/remove people, including other admins.	x			
Add members or others with lower permissions.	x	x		
Publish and update an app.	x	x		
Share an item or share an app.	x	x		
Allow others to reshare items.	x	x		
Create, edit, and delete content in the workspace.	x	x	x	
Publish reports to the workspace, delete content.	x	x	x	
View an item.	x	x	x	x
Create a report in another workspace based on a dataset in this workspace.	x	x	x	x¹
Copy a report.	x	x	x	x¹

Box 2: Build
The analysts must be able to build new reports from the dataset that contains the profit and loss data.
Scenario: The reports must be made available to the board from powerbi.com.
The analysts responsible for each business unit must see all the data the board sees, except the profit and loss data, which must be restricted to only their business unit's dat a. The analysts must be able to build new reports from the dataset that contains the profit and loss data, but any reports that the analysts build must not be included in the quarterly reports for the board. The analysts must not be able to share the quarterly reports with anyone.
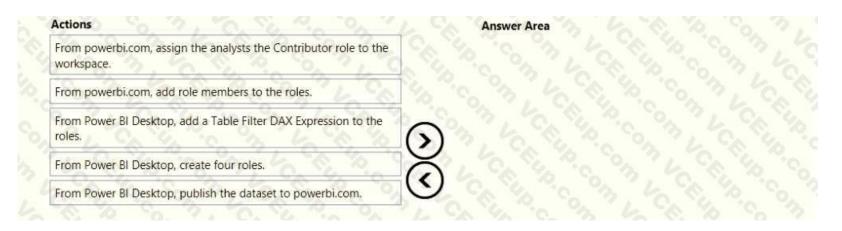Reference:
https://www.nickyvv.com/2019/08/the-new-power-bi-workspace-viewer-role-explained.html
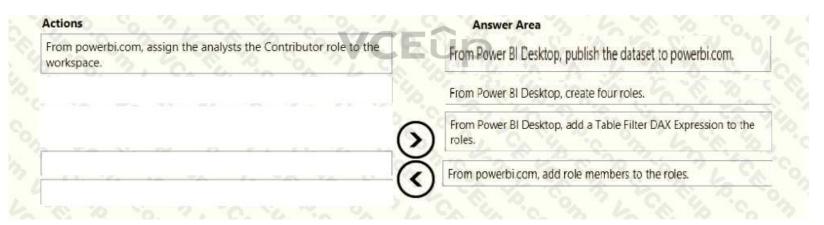
QUESTION 10
DRAG DROP
Once the profit and loss dataset is created, which four actions should you perform in sequence to ensure that the business unit analysts see the appropriate profit and loss data? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.

Select and Place:

Actions		Answer Area
From powerbi.com, assign the analysts the Contributor role to the workspace.		
From powerbi.com, add role members to the roles.		
From Power BI Desktop, add a Table Filter DAX Expression to the roles.	＞	
From Power BI Desktop, create four roles.	＜	
From Power BI Desktop, publish the dataset to powerbi.com.		

Correct Answer:

Actions		Answer Area
From powerbi.com, assign the analysts the Contributor role to the workspace.		From Power BI Desktop, publish the dataset to powerbi.com.
		From Power BI Desktop, create four roles.
	＞	From Power BI Desktop, add a Table Filter DAX Expression to the roles.
	＜	From powerbi.com, add role members to the roles.

Section: (none)
Explanation

Explanation/Reference:
https://docs.microsoft.com/en-us/power-bi/admin/service-admin-rls
https://docs.microsoft.com/en-us/power-bi/connect-data/service-datasets-build-permissions

QUESTION 11
HOTSPOT
How should you distribute the reports to the board? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

Hot Area:

Grant access by: [▼]
| Sharing individual reports |
| Using a workspace membership |
| Using an app |

Grant access to: [▼]
| A dynamic distribution list |
| A mail-enabled security group |
| Individual user emails |

Correct Answer:

Grant access by: [▼]
| Sharing individual reports |
| **Using a workspace membership** |
| Using an app |

Grant access to: [▼]
| A dynamic distribution list |
| **A mail-enabled security group** |
| Individual user emails |

Section: (none)
Explanation

Explanation/Reference:
Box 1: Using a workspace membership
Scenario:
The company wants to provide a single package of reports to the board that contains custom navigation and links to supplementary information.
Note: Workspace is a shared environment for a group of people. You can have multiple Power BI content in a workspace. One workspace can have hundreds of dashboards, reports, and datasets in it.
Box 2: A mail-enabled security group
Scenario: Security Requirements
The reports must be made available to the board from powerbi.com. A mail-enabled security group will be used to share information with the board.

Topic 03

QUESTION 1
Topic 3, Northwind Traders
Case study
This is a case study. Case studies are not timed separately. You can use as much exam time as you would like to complete each case. However, there may be additional case studies and sections on this exam. You must manage your time to ensure that you are able to complete all question included on this exam in the time provided.
To answer the questions included in a case study, you will need to reference information that is provided in the case study. Case studies might contain exhibits and other resources that provide more information about the scenario that is described in the case study. Each question is independent of the other question on this case study.
At the end of this case study, a review screen will appear. This screen allows you to review your answers and to make changes before you move to the next section of the exam. After you begin a new section, you cannot return to this section.
To start the case study
To display the first question on this case study, click the Next button. Use the buttons in the left pane to explore the content of the case study before you answer the questions. Clicking these buttons displays information such as business requirements, existing environment, and problem statements.
If the case study has an All Information tab, note that the information displayed is identical to the information displayed on the subsequent tabs. When you are ready to answer a question, click the Question button to return to the question.
Overview. General Overview
Northwind Traders is a specialty food import company.
The company recently implemented Power BI to better understand its top customers, products, and suppliers.
Overview. Business Issues
The sales department relies on the IT department to generate reports in Microsoft SQL Server Reporting Services (SSRS). The IT department takes too long to generate the reports and often misunderstands the report requirements.
Existing Environment. Data Sources
Northwind Traders uses the data sources shown in the following table.

Name	Type	Data size
Source1	Azure SQL database	2 GB
Source2	Microsoft Excel spreadsheet	5 MB

Source2 is exported daily from a third-party system and stored in Microsoft SharePoint Online.
Existing Environment. Customer Worksheet
Source2 contains a single worksheet named Customer Details. The first 11 rows of the worksheet are shown in the following table.

CustomerID	CustomerCRMID	CompanyName	Address	City	Region	PostalCode	Country	Phone
1	ALFKI	Alfreds Futterkiste	Obere Str. 57	Berlin	DE	12209	Germany	030-0074321
2	ANATR	Ana Trujillo Emparedados y helados	Avda. de la Constitución 2222	México D.F.	MX	5021	Mexico	(5) 555-4729
3	ANTON	Antonio Moreno Taquería	Mataderos 2312	México D.F.	MX	5023	Mexico	(5) 555-3932
4	AROUT	Around the Horn	120 Hanover Sq.	London	UK	WA1 1DP	UK	(171) 555-7788
5	BERGS	Berglunds snabbköp	Berguvsvägen 8	Luleå	SWE	S-958 22	Sweden	0921-12 34 65
6	BLAUS	Blauer See Delikatessen	Forsterstr. 57	Mannheim	DE	68306	Germany	0621-08460
7	BLONP	Blondesddsl père et fils	24, place Kléber	Strasbourg	FRA	67000	France	88.60.15.31
8	BOLID	Bólido Comidas preparadas	C/ Araquil, 67	Madrid	SPN	28023	Spain	(91) 555 22 82
9	BONAP	Bon app'	12, rue des Bouchers	Marseille	FRA	13008	France	91.24.45.40
10	BOTTM	Bottom-Dollar Markets	23 Tsawassen Blvd.	Tsawassen	BC	T2F 8M4	Canada	(604) 555-4729

All the fields in Source2 are mandatory.
The Address column in Customer Details is the billing address, which can differ from the shipping address.
Existing Environment. Azure SQL Database
Source1 contains the following table:
Orders
Products
Suppliers
Categories
Order Details
Sales Employees
The Orders table contains the following columns.

Name	Is nullable	Data type	Example value	Key
OrderID	No	Int	10248	Primary key
CustomerID	Yes	NCHAR	VINET	**Not applicable**
OrderDate	Yes	Date	2021-01-04	**Not applicable**
RequiredDate	Yes	Date	2021-02-01	**Not applicable**
ShippedDate	Yes	Date	2021-01-16	**Not applicable**
Freight	Yes	Decimal	32.38	**Not applicable**
ShipName	Yes	NVARCHAR	Vins et alcools Chevalier	**Not applicable**
ShipAddress	Yes	NVARCHAR	59 rue de l'Abbaye	**Not applicable**
ShipCity	Yes	NVARCHAR	Reims	**Not applicable**
ShipRegion	Yes	NVARCHAR	FRA	**Not applicable**
ShipPostalCode	Yes	NVARCHAR	511000	**Not applicable**
ShipCountry	Yes	NVARCHAR	France	**Not applicable**

The Order Details table contains the following columns.

Name	Is nullable	Data type	Example value	Key
ProductID	No	Int	11	Primary key
ProductName	No	NVARCHAR	Queso Cabrales	**Not applicable**
SupplierID	Yes	Int	5	Foreign key to Suppliers
CategoryID	Yes	Int	4	Foreign key to Categories
QuantityPerUnit	Yes	NVARCHAR	1 kg pkg.	**Not applicable**
Discontinued	No	Bit	0	**Not applicable**

The address in the Orders table is the shipping address, which can differ from the billing address.
The Products table contains the following columns.

Name	Is nullable	Data type	Example value	Key
ProductID	No	Int	11	Primary key
ProductName	No	NVARCHAR	Queso Cabrales	**Not applicable**
SupplierID	Yes	Int	5	Foreign key to Suppliers
CategoryID	Yes	Int	4	Foreign key to Categories
QuantityPerUnit	Yes	NVARCHAR	1 kg pkg.	**Not applicable**
Discontinued	No	Bit	0	**Not applicable**

The Categories table contains the following columns.

Name	Is nullable	Data type	Example value	Key
CategoryID	No	int	4	Primary key
CategoryName	No	nvarchar	Dairy Products	**Not applicable**
Description	Yes	nvarchar	Cheeses	**Not applicable**

The Suppliers table contains the following columns.

Name	Is nullable	Data type	Example value	Key
SupplierID	No	Int	5	Primary key
CompanyName	No	NVARCHAR	Cooperativa de Quesos 'Las Cabras'	Not applicable
Address	Yes	NVARCHAR	Calle del Rosal 4	Not applicable
City	Yes	NVARCHAR	Oviedo	Not applicable
Region	Yes	NVARCHAR	Asturias	Not applicable
PostalCode	Yes	NVARCHAR	33007	Not applicable
Country	Yes	NVARCHAR	Spain	Not applicable
Phone	Yes	NVARCHAR	(98) 598 76 54	Not applicable

The Sales Employees table contains the following columns.

Name	Is nullable	Data type	Example value	Key
EmployeeID	No	Int	1	Primary key
LastName	No	NVARCHAR	Davolio	Not applicable
FirstName	No	NVARCHAR	Nancy	Not applicable
Title	Yes	NVARCHAR	Sales Representative	Not applicable
HireDate	Yes	Date	2015-02-01	Not applicable
Region	Yes	NVARCHAR	WA	Not applicable
Country	Yes	NVARCHAR	USA	Not applicable
EmailAddress	No	NVARCHAR	ndavolio@northwindtraders.com	Not applicable

Each employee in the Sales Employees table is assigned to one sales region. Multiple employees can be assigned to each region.
Requirements. Report Requirements
Northwind Traders requires the following reports:
Top Products
Top Customers
On-Time Shipping
The Top Customers report will show the top 20 customers based on the highest sales amounts in a selected order month or quarter, product category, and sales region.
The Top Products report will show the top 20 products based on the highest sales amounts sold in a selected order month or quarter, sales region, and product category. The report must also show which suppliers provide the top products.
The On-Time Shipping report will show the following metrics for a selected shipping month or quarter:
The percentage of orders that were shipped late by country and shipping region Customers that had multiple late shipments during the last quarter Northwind Traders defines late orders as those shipped after the required shipping date.
The warehouse shipping department must be notified if the percentage of late orders within the current month exceeds 5%.
The reports must show historical data for the current calendar year and the last three calendar years.
Requirements. Technical Requirements
Northwind Traders identifies the following technical requirements:
A single dataset must support all three reports.
The reports must be stored in a single Power BI workspace.
Report data must be current as of 7 AM Pacific Time each day.
The reports must provide fast response times when users interact with a visualization.
The data model must minimize the size of the dataset as much as possible, while meeting the report requirements and the technical requirements.
Requirements. Security Requirements
Access to the reports must be granted to Azure Active Directory (Azure AD) security groups only. An Azure AD security group exists for each department.
The sales department must be able to perform the following tasks in Power BI:
Create, edit, and delete content in the reports.
Manage permissions for workspaces, datasets, and report.
Publish, unpublish, update, and change the permissions for an app.
Assign Azure AD groups role-based access to the reports workspace.
Users in the sales department must be able to access only the data of the sales region to which they are assigned in the Sales Employees table.
Power BI has the following row-level security (RLS) Table filter DAX expression for the Sales Employees table.
[EmailAddress] = USERNAME()
RLS will be applied only to the sales department users. Users in all other departments must be able to view all the data.

A.

Correct Answer:
Section: (none)
Explanation

Explanation/Reference:

QUESTION 2
You need to design the data model to meet the report requirements.
What should you do in Power BI Desktop?

A. From Power Query, use a DAX expression to add columns to the Orders table to calculate the calendar quarter of the OrderDate column, the calendar month of the OrderDate column, the calendar quarter of the ShippedDate column, and the calendar month of the ShippedDate column.

B. From Power Query, add columns to the Orders table to calculate the calendar quarter and the calendar month of the OrderDate column.

C. From Power BI Desktop, use the Auto date/time option when creating the reports.

D. From Power Query, add a date table. Create an active relationship to the OrderDate column in the Orders table and an inactive relationship to the ShippedDate column in the Orders table.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Use Power Query to calculate calendar quarter and calendar month.
Scenario:
A single dataset must support all three reports:
- The Top Customers report will show the top 20 customers based on the highest sales amounts in a selected order month or quarter, product category, and sales region.
- The Top Products report will show the top 20 products based on the highest sales amounts sold in a selected order month or quarter, sales region, and product category.
The data model must minimize the size of the dataset as much as possible, while meeting the report requirements and the technical requirements.

QUESTION 3
You need to create the On-Time Shipping report. The report must include a visualization that shows the percentage of late orders.
Which type of visualization should you create?

A. bar chart

B. scatterplot

C. pie chart

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Scenario: The On-Time Shipping report will show the following metrics for a selected shipping month or quarter:
The percentage of orders that were shipped late by country and shipping region Customers that had multiple late shipments during the last quarter Note: Bar and column charts are some of the most widely used visualization charts in Power BI. They can be used for one or multiple categories. Both these chart types represent data with rectangular bars, where the size of the bar is proportional to the magnitude of data values.
The difference between the two is that if the rectangles are stacked horizontally, it is called a bar chart. If the rectangles are vertically aligned, it is called a column chart.
Reference:
https://www.pluralsight.com/guides/bar-and-column-charts-in-power-bi

QUESTION 4
You need to minimize me size of the dataset. The solution must meet the report requirements What should you do?

A. Change lite OrderID column in the Orders table to the text data type.

B. Filter out discontinued products while importing the Product table.

C. Remove the QuantityPerUnit column from the Products table

D. Group the Categories table by the CategoryID column.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 5
You need to configure access for the sales department users. The solution must me meet the security requirements. What should you do?

A. Add the sales department as a member of the reports workspace
B. Add the Azure Active Directory group of the sales department as an Admin of the reports workspace.
C. Distribute an app to the users in the Azure Active Directory group of the sales department.
D. Share each report to the Azure Active Directory group of the sales department.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 6
You need to create the dataset. Which dataset mode should you use?

A. DirectQuery
B. Import
C. Live connection
D. Composite

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Topic 4, Misc. Questions

QUESTION 7
HOTSPOT
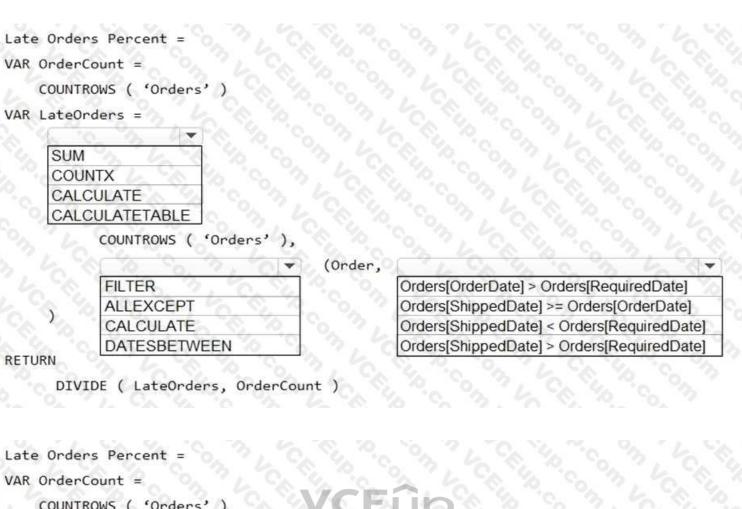You need to create a measure that will return the percentage of late orders.
How should you complete the DAX expression? To answer, select the appropriate options in the answer area.
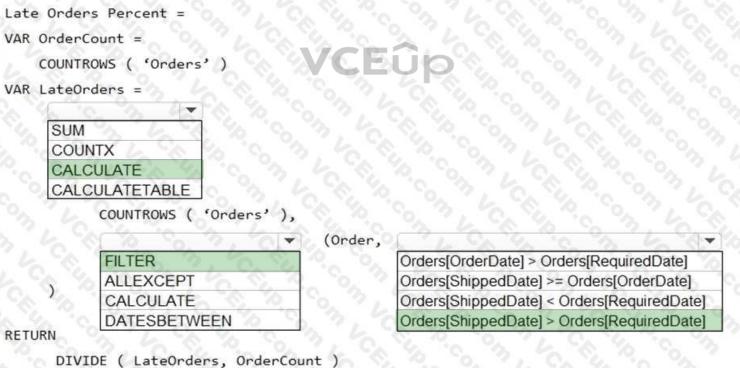NOTE: Each correct selection is worth one point.

Hot Area:

```
Late Orders Percent =
VAR OrderCount =
    COUNTROWS ( 'Orders' )
VAR LateOrders =
```
▼
SUM
COUNTX
CALCULATE
CALCULATETABLE

```
        COUNTROWS ( 'Orders' ),
```

▼	(Order,	▼
FILTER		Orders[OrderDate] > Orders[RequiredDate]
ALLEXCEPT		Orders[ShippedDate] >= Orders[OrderDate]
CALCULATE		Orders[ShippedDate] < Orders[RequiredDate]
DATESBETWEEN		Orders[ShippedDate] > Orders[RequiredDate]

```
)
RETURN
        DIVIDE ( LateOrders, OrderCount )
```

Correct Answer:

```
Late Orders Percent =
VAR OrderCount =
    COUNTROWS ( 'Orders' )
VAR LateOrders =
```
▼
SUM
COUNTX
CALCULATE
CALCULATETABLE

```
        COUNTROWS ( 'Orders' ),
```

▼	(Order,	▼
FILTER		Orders[OrderDate] > Orders[RequiredDate]
ALLEXCEPT		Orders[ShippedDate] >= Orders[OrderDate]
CALCULATE		Orders[ShippedDate] < Orders[RequiredDate]
DATESBETWEEN		**Orders[ShippedDate] > Orders[RequiredDate]**

```
)
RETURN
        DIVIDE ( LateOrders, OrderCount )
```

Section: (none)
Explanation

Explanation/Reference:
Box 1: CALCULATE
CALCULATE evaluates an expression in a modified filter context.
Syntax: CALCULATE(<expression>[, <filter1> [, <filter2> [, …]]])
Expression - The expression to be evaluated. filter1, filter2,… (Optional) Boolean expressions or table expressions that defines filters, or filter modifier functions.
Box 2: FILTER

FILTER returns a table that represents a subset of another table or expression.
Syntax: FILTER(<table>,<filter>)
Table- The table to be filtered. The table can also be an expression that results in a table.
Filter - A Boolean expression that is to be evaluated for each row of the table. For example, [Amount]
> 0 or [Region] = "France" Box 3: Orders[ShippedDate]> Orders[RequiredDate] Northwind Traders defines late orders as those shipped after the required shipping date.
Reference:
https://docs.microsoft.com/en-us/dax/calculate-function-dax
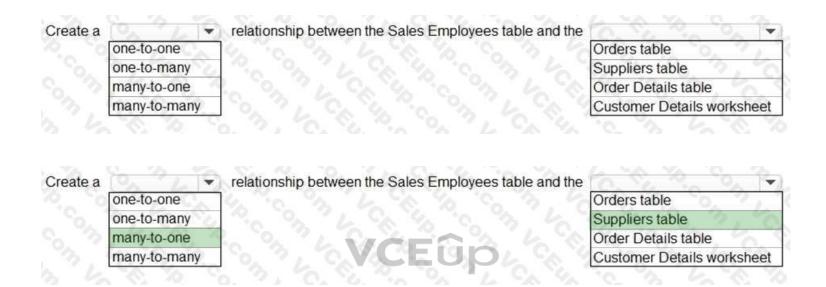https://docs.microsoft.com/en-us/dax/filter-function-dax

QUESTION 8
HOTSPOT
You need to create a relationship in the dataset for RLS.
What should you do? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

Hot Area:

Create a [▼] relationship between the Sales Employees table and the [▼]

| one-to-one |
| one-to-many |
| many-to-one |
| many-to-many |

| Orders table |
| Suppliers table |
| Order Details table |
| Customer Details worksheet |

Correct Answer:

Create a [▼] relationship between the Sales Employees table and the [▼]

| one-to-one |
| one-to-many |
| **many-to-one** |
| many-to-many |

| Orders table |
| **Suppliers table** |
| Order Details table |
| Customer Details worksheet |

Section: (none)
Explanation

Explanation/Reference:
Box 1: many-to-one
Each employee in the Sales Employees table is assigned to one sales region. Multiple employees can be assigned to each region.
The Suppliers table has a Region column.
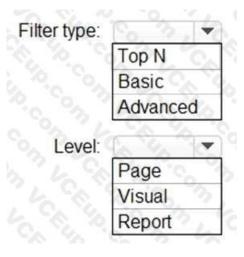Box 2: Suppliers table

QUESTION 9
HOTSPOT
You need to create the Top Customers report.
Which type of filter should you use, and at which level should you apply the filter? To answer, select the appropriate options in the answer area.
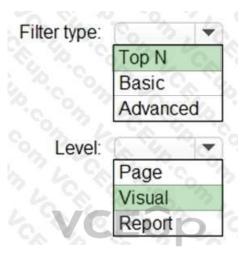NOTE: Each correct selection is worth one point.

Hot Area:

Filter type: [Top N ▼]
- Top N
- Basic
- Advanced

Level: [▼]
- Page
- Visual
- Report

Correct Answer:

Filter type: [▼]
- **Top N**
- Basic
- Advanced

Level: [▼]
- Page
- **Visual**
- Report

Section: (none)
Explanation

Explanation/Reference:
Box 1: Top N
Scenario: The Top Customers report will show the top 20 customers based on the highest sales amounts in a selected order month or quarter, product category, and sales region.
Once you drag to SKU to Visual level filter you should get Top N option Note: The two most common filter types: automatic and manual.
Then there are more advanced filters.
Box 2: Visual
Once you drag to SKU to Visual level filter you should get Top N option.
Reference:
https://powerbidocs.com/2020/01/21/power-bi-top-n-filters/

QUESTION 10
HOTSPOT
You need to design the data model and the relationships for the Customer Details worksheet and the Orders table by using Power BI. The solution must meet the report requirements.
For each of the following statement, select Yes if the statement is true, Otherwise, select No.
NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Statements	Yes	No
A relationship must be created between the CustomerID column in the Customer Details worksheet and the CustomerID column in the Orders table.	○	○
The Data Type of the columns in the relationship between the Customer Details worksheet and the Orders table must be set to **Text**.	○	○
The Region field used to filter the Top Customers report must come from the Orders table.	○	○

Correct Answer:

Answer Area

Statements	Yes	No
A relationship must be created between the CustomerID column in the Customer Details worksheet and the CustomerID column in the Orders table.	●	○
The Data Type of the columns in the relationship between the Customer Details worksheet and the Orders table must be set to **Text**.	○	●
The Region field used to filter the Top Customers report must come from the Orders table.	●	○

Section: (none)
Explanation

Explanation/Reference:

QUESTION 11
HOTSPOT
You need to create a solution to meet the notification requirements of the warehouse shipping department.
What should you do? To answer, select the appropriate options in the answer area.

Hot Area:

Answer Area

Populate a [report / bookmark / dashboard] by using a card visualization that shows the percentage of late orders in the then configure a [data alert / phone view / subsc...]

These are the selections for the second missing value.

Correct Answer:

Answer Area

Populate a [report / bookmark / **dashboard**] by using a card visualization that shows the percentage of late orders in the then configure a [data alert / **phone view** / subsc...]

These are the selections for the second missing value.

Section: (none)
Explanation

Explanation/Reference: