Excel Practice Problems with Solutions

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Basic Formulas and Functions

Problem 1

Calculate the total sales for a list of products.

Data:

Product	Price	Quantity
A	10	5
B	15	3
C	20	4

Solution:

```
=SUM(B2:B4 * C2:C4)
```

Problem 2

Find the average price of products with a quantity greater than 3.

Solution:

```
=AVERAGEIF(C2:C4, ">3", B2:B4)
```

Problem 3

Count how many products have a price between 10 and 20.

Solution:

```
=COUNTIFS(B2:B4, ">=10", B2:B4, "<=20")
```

Problem 4

Calculate the total revenue if there's a 10% discount on all products.

Solution:

```
=SUM(B2:B4 * C2:C4) * 0.9
```

Problem 5

Find the highest quantity sold.

Solution:

```
=MAX(C2:C4)
```

Text Functions

Problem 6

Combine the Product name with its Price, separated by a hyphen.

Solution:

```
=CONCATENATE(A2, "-", B2)
```

or in newer Excel versions:

```
=A2 & "-" & B2
```

Problem 7

Extract the first letter of each product name.

Solution:

```
=LEFT(A2, 1)
```

Problem 8

Convert all product names to uppercase.

Solution:

```
=UPPER(A2)
```

Problem 9

Find the position of the letter "o" in "Product".

Solution:

```
=FIND("o", "Product")
```

Problem 10

Remove any leading or trailing spaces from the product names.

Solution:

```
=TRIM(A2)
```

Date and Time Functions

Problem 11

Calculate the number of days between two dates.

Data:

Start Date	End Date
1/1/2023	3/15/2023

Solution:

```
=DATEDIF(A2, B2, "d")
```

Problem 12

Find out what day of the week a certain date falls on.

Solution:

```
=TEXT(A2, "dddd")
```

Problem 13

Add 30 days to a given date.

Solution:

```
=A2 + 30
```

Problem 14

Calculate the number of full months between two dates.

Solution:

```
=DATEDIF(A2, B2, "m")
```

Problem 15

Find the last day of the current month.

Solution:

```
=EOMONTH(TODAY(), 0)
```

Logical Functions

Problem 16

Categorize products as "Cheap" if price < 15, "Moderate" if between 15 and 25, and "Expensive" if > 25.

Solution:

```
=IF(B2<15, "Cheap", IF(B2<=25, "Moderate", "Expensive"))
```

Problem 17

Check if both the price is greater than 10 and the quantity is more than 3.

Solution:

```
=AND(B2>10, C2>3)
```

Problem 18

Determine if either the price is less than 15 or the quantity is more than 5.

Solution:

```
=OR(B2<15, C2>5)
```

Problem 19

If the quantity is 0, return "Out of Stock", otherwise return "In Stock".

Solution:

```
=IF(C2=0, "Out of Stock", "In Stock")
```

Problem 20

Create a formula that returns TRUE if the product name starts with "A" and the price is less than 20.

Solution:

```
=AND(LEFT(A2,1)="A", B2<20)
```

Lookup Functions

Problem 21

Use VLOOKUP to find the price of a product given its name.

Data:

Product	Price
A	10
B	15
C	20

Solution:

```
=VLOOKUP("B", A2:B4, 2, FALSE)
```

Problem 22

Use INDEX-MATCH to find the quantity of a product given its name.

Data:

Product	Price	Quantity
A	10	5
B	15	3
C	20	4

Solution:

```
=INDEX(C2:C4, MATCH("B", A2:A4, 0))
```

Problem 23

Use XLOOKUP to find the price of a product given its name (for Excel 365 users).

Solution:

```
=XLOOKUP("B", A2:A4, B2:B4)
```

Problem 24

Create a two-way lookup using INDEX and MATCH to find the value at the intersection of a row and column.

Data:

	Jan	Feb	Mar
Prod A	100	110	120
Prod B	90	95	100
Prod C	80	85	90

Solution:

```
=INDEX(B2:D4, MATCH("Prod B", A2:A4, 0), MATCH("Feb", B1:D1, 0))
```

Problem 25

Use INDIRECT and ADDRESS to create a dynamic cell reference based on row and column numbers.

Solution:

```
=INDIRECT(ADDRESS(2, 3))
```

Statistical Functions

Problem 26

Calculate the median price of products.

Solution:

```
=MEDIAN(B2:B4)
```

Problem 27

Find the mode of the quantities (most frequently occurring value).

Solution:

```
=MODE.SNGL(C2:C4)
```

Problem 28

Calculate the standard deviation of prices.

Solution:

```
=STDEV.P(B2:B4)
```

Problem 29

Rank the products by their prices (highest to lowest).

Solution:

```
=RANK.EQ(B2, $B$2:$B$4, 0)
```

Problem 30

Calculate the correlation between price and quantity.

Solution:

```
=CORREL(B2:B4, C2:C4)
```

Financial Functions

Problem 31

Calculate the future value of an investment of $1000 at 5% annual interest rate after 10 years.

Solution:

```
=FV(5%, 10, 0, -1000)
```

Problem 32

Calculate the monthly payment for a $200,000 loan at 4% annual interest rate for 30 years.

Solution:

```
=PMT(4%/12, 30*12, 200000)
```

Problem 33

Calculate the net present value of a series of cash flows with a 10% discount rate.

Data:

Year	Cash Flow
0	-10000
1	3000
2	4000
3	5000

Solution:

```
=NPV(10%, B3:B5) + B2
```

Problem 34

Calculate the internal rate of return for the same series of cash flows.

Solution:

```
=IRR(B2:B5)
```

Problem 35

Calculate the depreciation of an asset worth $10,000 with a salvage value of $2,000 after 5 years using straight-line method.

Solution:

```
=SLN(10000, 2000, 5)
```

Array Formulas

Problem 36

Calculate the total revenue for each product without using helper columns.

Data:

Product	Price	Quantity
A	10	5
B	15	3
C	20	4

Solution (for Excel 365):

```
=B2:B4 * C2:C4
```

Problem 37

Find the second highest price without using helper columns.

Solution (for Excel 365):

```
=LARGE(B2:B4, 2)
```

Problem 38

Count how many products have above-average prices.

Solution (for Excel 365):

```
=SUM(--(B2:B4 > AVERAGE(B2:B4)))
```

Problem 39

Create a list of all products that have a quantity greater than 3.

Solution (for Excel 365):

```
=FILTER(A2:A4, C2:C4>3)
```

Problem 40

Calculate the cumulative sum of quantities.

Solution (for Excel 365):

```
=SCAN(0, C2:C4, LAMBDA(a,b,a+b))
```

Pivot Tables

Problem 41

Create a pivot table that shows the total sales for each product.

Solution:

1. Select your data range
2. Insert > PivotTable
3. Drag 'Product' to Rows and 'Sales' to Values

Problem 42

Add a calculated field to a pivot table to show the profit margin (assuming a 30% margin on sales).

Solution:

1. PivotTable Analyze > Fields, Items, & Sets > Calculated Field
2. Name: Profit
3. Formula: =Sales * 0.3

Problem 43

Create a pivot chart showing the contribution of each product to total sales.

Solution:

1. Create a pivot table with 'Product' in Rows and 'Sales' in Values
2. PivotTable Analyze > PivotChart
3. Select a pie chart

Problem 44

Use slicers to filter a pivot table by date range.

Solution:

1. Create a pivot table with 'Date' in Filters
2. PivotTable Analyze > Insert Slicer
3. Select 'Date'

Problem 45

Create a pivot table that shows year-over-year growth in sales.

Solution:

1. Create a pivot table with 'Year' in Rows and 'Sales' in Values
2. Right-click on a value > Show Values As > % Difference From
3. Base field: Sales, Base item: (previous)

Data Analysis

Problem 46

Use Goal Seek to find what quantity of Product A needs to be sold to reach a total revenue of $1000.

Solution:

1. Set up your data with formulas for revenue
2. Data > What-If Analysis > Goal Seek
3. Set cell: [revenue cell], To value: 1000, By changing cell: [quantity cell]

Problem 47

Create a forecast sheet to predict future sales based on historical data.

Solution:

1. Select your historical data
2. Data > Forecast Sheet
3. Adjust options as needed

Problem 48

Use the Solver add-in to maximize profit given constraints on production capacity.

Solution:

1. Set up your data with formulas for profit and constraints
2. Data > Solver
3. Set objective: [profit cell]
4. By changing variable cells: [quantity cells]
5. Subject to the constraints: [capacity constraints]
6. Solve

Problem 49

Perform a regression analysis to understand the relationship between advertising spend and sales.

Solution:

1. Data > Data Analysis > Regression
2. Input Y Range: [sales data]
3. Input X Range: [advertising spend data]
4. Check 'Labels' if you have them
5. Output Range: Select a cell
6. OK

Problem 50

Create a histogram of sales data.

Solution:

1. Data > Data Analysis > Histogram
2. Input Range: [sales data]
3. Bin Range: [optional]
4. Output Range: Select a cell
5. Check 'Chart Output'
6. OK

Problem 51

Use conditional formatting to create a heat map of sales performance by product and month.

Solution:

1. Select your data range
2. Home > Conditional Formatting > Color Scales
3. Choose a color scale

Problem 52

Create a dynamic named range that automatically expands as new data is added.

Solution:

1. Formulas > Define Name
2. Name: DynamicRange
3. Refers to: =OFFSET(Sheet1!$A$1,0,0,COUNTA(Sheet1!$A:$A),COUNTA(Sheet1!$1:$1))

Remember, practicing these problems will significantly improve your Excel skills. Don't hesitate to experiment and try different approaches to solve each problem. Good luck with your Excel learning journey!