1. Count IF/IFS

S.No	Roll No	Total	Average		Mark Obtained	
1	006200	62	62%		60% & above	
2	006228	55	55%		Between 50% to 59%	
3	006231	42	42%		Between 40% to 49%	
4	006245	43	43%		Between 30% to 39%	
5	006262	34	34%		Between 20% to 29%	
6	006280	67	67%		Below 20%	
7	006301	23	23%			
8	006329	15	15%			
9	006332	27	27%		Count	
10	006350	17	17%			

2. SUM IF

Emp Name	Customer	Product	Revenue	Sum according to Product
RAJ	OPQ, Pvt. Ltd	Table	25000	
MONA	VWX & Sons	Sofa	125000	
TEENA	VWX PVT Ltd	Chair	4663	
JAI	WXY, Pvt. Ltd	Sofa	5566	
RAJ	XYZ & Sons	Bed	55632	
MONA	XYZ Company	Table	8596652	
TEENA	STU Company	Bed	5522	
TEENA	OPQ, Pvt. Ltd	Bed	55522	
JAI	VWX & Sons	Chair	855525	
MONA	VWX PVT Ltd	Sofa	8555	
TEENA	WXY, Pvt. Ltd	Sofa	65455452	

3. V LOOKUP

Name of Stock	Type	Open Price	High	Low	Current
MRF	EQ	1300	1542	1000	1400
SBIN	N1	1244	140000	23	1222
GSKC	N2	1256	23444	2445	2222

The VLOOKUP function extracts the data from a particular cell in a table. VLOOKUP Function looks for a value in left most column of a table and then returns a value in the same row from a column specified by us. In short, this function starts by searching down the

first column of the table to find a value that we specify. When it finds that value, it moves across a specified number of columns in the given range and returns the value in the target cell

4. H LOOKUP

Code	533	345	234	2333
Name of stocks	ABB	JINDAL	ITC	RELIANCE
OPEN	200	500	40	23
HIGH	300	600	50	34
LOW	400	5000	49	34
CLOSE	500	4000	56	45

Similar to VLOOKUP function, HLOOKUP Function looks for a value in Top row of a table or array of values and then returns a value in the same column from a row specified by us. In short, this function starts by searching across the first row of the table to find a value that we specify

5. IF and RANK

	Name	Roll No	Module1	Module2	Project	Online	Total	Average	Pass/Fail	Grade	Rank
2	Sakshi	1	70	75	70	75					
3	Akanksha	2	50	50	60	65					
4	Deepti	3	63	65	73	80					
5	Akash	4	55	60	45	60					
6	Munish	5	40	50	50	60					
7	Megha	6	65	55	55	55					
8	Ramesh	7	45	50	65	60					
9	Sanjeev	8	75	65	90	70					
10	Rajeev	9	49	55	45	65					
11	Ansh	10	50	50	55	50					

1. Pass 60%, at all levels
2. Grade 70% and above _a, 60% and above_b, 50% and above _c, otherwise _d

6. DEPENDENT VALIDATION CREATION

CASE STUDY: Your principal CMA Chandiwala wants you to create two dropdown lists. The second list should be dependent on what is selected in the first one. He wants the first dropdown list with CA Partner-in-charge i.e. CMA Chandiwala & CMA Sonawala and independent List in 2nd cell, we want the dropdown list of Audit Managers from the respective lists.

Strategy:

We can use the INDIRECT function as the source of the second list.

	A	B	C
1	**Partner-in charge**	**Chandiwala**	**Sonawala**
2	Chandiwala	Ram Mohan	Ramesh Chand
3	Sonawala	Shyam Mohan	Mool Chand
4		Chander Mohan	Prakash Chand

7. CONSOLIDATE MULTIPLE SHEETS IN PIVOTTABLE

CASE STUDY: Your Principal CMA Chandiwala gives you a workbook containing four sheets for each quarter sales, he wants you to consolidate in a single sheet and create a Pivot based on the same.

	A	B	C	D
1	DATE	AMOUNT		
2	24-04-2019	45,460.00		
3	29-05-2019	81,068.00		
4	05-06-2019	7,493.00		
5	06-06-2019	43,877.00		
6	09-06-2019	24,659.00		
7	29-06-2019	22,906.00		
8	30-06-2019	8,954.00		

Q1 Q2 Q3 Q4

8. DATA CONSOLIDATION

	A	B
1	Head	Expenditure
2	Salaries & Wages	6,20,600
3	Bank Charges	6,090
4	Depreciation	54,406
5	Professional Fee	15,600
6	Insurance Expenses	5,440
7	Travelling Expenses	17,898
8	License & Fees	40,500
9	Dues & Subscriptions	13,620
10	Staff Welfare	411
11	Advertising Expense	281

Q1 Q2 Q3 Q4 Y1

9. **SUBTOTALS**

CASE STUDY: Your principal CMA Chandiwala gives you an excel sheet containing date-wise payment made to contractors as shown in Figure 4.4.8. He wants you to check for cases where total freight paid to any Contractor is more than Rs.1, 00,000 so that it could check for TDS compliance under Income Tax.

	A	B	C
1	**Date_Pay**	**Contractor**	**Amount**
2	09-04-2019	Amar	29,300
3	12-04-2019	Anthony	28,800
4	03-05-2019	Amar	28,700
5	22-07-2019	Amar	29,200
6	11-11-2019	Amitabh	21,400
7	05-12-2019	Amitabh	28,200
8	06-12-2019	Amitabh	28,300
9	07-12-2019	Akbar	23,800
10	07-12-2019	Anthony	25,400
11	17-12-2019	Amitabh	21,500
12	01-01-2020	Akbar	22,900
13	02-01-2020	Akbar	27,800
14	15-01-2020	Anthony	23,200
15	30-01-2020	Akbar	8,000
16	03-02-2020	Anthony	27,500
17	21-03-2020	Akbar	15,500
18	21-03-2020	Anthony	22,900
19	24-03-2020	Amar	4,500
20	30-03-2020	Amitabh	15,000

10. GOAL SEEK

CASE STUDY: As a Mortgage Analyst in a Bank you propose to give a Housing Loan to a prospective client on the following terms

- Loan amount Rs. 40, 00,000.
- ROI Annual 12%
- Term 240 Months

You calculate the EMI but your client says he cannot spare more than 42000 every month. You want to reset the term to achieve a targeted EMI of 42000 pm.

11. CASE STUDY: Your principal CMA Chandiwala during a recent review, discovered that a Client has a Huge Risk which could have an impact of Rs. 1, 00, 00,000 and that the likelihood is currently 6%. Proposed control procedures to mitigate this risk would cost 2, 00,000 and reduce the likelihood to 3%; he wants you to find the likelihood of occurrence without the control and the reduction in the expected loss if the net gain/loss is 0.

	A	B	C	D	E	F	G	H
1	Likelihood of occurrence assuming no control	Exposure	Expected Loss with no Control	Likelihood of occurrence with control	Expected Loss with Control Procedure	Reduction in Expected Loss	Cost of Control	Net Gain/Loss
2	6%	1,00,00,000	6,00,000	3%	3,00,000	3,00,000	2,00,000	1,00,000

12. SCENARIO MANAGER

CASE STUDY: Your principal CMA Chandiwala has created a sheet containing quarterly operating results of 4 quarters. And in the last column, he has Annual results. You have a case where the quarter to quarter growth of sales, COGS, and

expenditure has been taken at 2%, 3% & 5% as shown in Figure but now he wants you to create scenarios where the growth rates may be different. So you now want to also create a Best case scenario and the worst-case scenario with assumptive growth rates 3%, 3% & 5% and 1%, 2% & 2% respectively.

	A	B	C	D	E	F	G
1		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Annual	Q to Q Growth
2	Sales	20,00,000	20,40,000	20,80,800	21,22,416	82,43,216	2%
3	COGS	10,00,000	10,30,000	10,60,900	10,92,727	41,83,627	3%
4	GP	10,00,000	10,10,000	10,19,900	10,29,689	40,59,589	
5	Expenses	5,00,000	5,25,000	5,51,250	5,78,813	21,55,063	5%
6	Profit	5,00,000	4,85,000	4,68,650	4,50,876	19,04,526	

13. RANOM NUMBERS

Excel provides two tools for generating random numbers as follows:
RAND: The RAND function in Microsoft Excel allows you to generate random numbers in Excel.
RAND is a volatile function, which means it will be recalculated any time the enter key is pressed, so the random number constantly changes. To prevent random numbers from changing, most people copy and paste them as values.
Excel's RAND function can be used to generate random numbers from the Uniform distribution.

RANDBETWEEN: The RANDBETWEEN returns a random integer between two specified numbers. A new random integer number is returned every time the worksheet is calculated.

From the table given below generate Random Numbers between educated person & uneducated person from three different cities

	Delhi	Mumbai	Chennai	Total
Educated Person	**2500**	**7500**	**15000**	
Uneducated Person	**4550**	**10000**	**18055**	
Difference	**2050**	**2500**	**3055**	**7605**
% Difference	**27%**	**33%**	**40%**	**100%**

14. DATA CONSOLIDATION

Consolidating data is a common task for CPAs, and Excel offers a variety of methods for performing this task. The particular method you use will probably depend on the layout of your data, and you may need to clean, edit or manipulate your data a bit to prepare it for consolidation. CPAs often have a need to consolidate data such as budgets, months, departments, locations, warehouses and sale representatives.

Suppose you have the budget data (given below) of department E from each quarter. Create same data for departments like F, G & H. You might need to consolidate this data of different quarters by using the following method as below:

A. **Using Simple Formulas To Consolidate Similar Data**
B. **Using Spearing Formulas To Consolidate Similar Data**
C. **Using the "Data Consolidate Command" To Consolidate Dissimilar Similar Data**

Budget data for Department E					
Details	**Q1**	**Q2**	**Q3**	**Q4**	**Total**
Supplies	5000	5000	5000	5000	25000

Salary	16700	16700	16700	16700	66800
Contract Labour	2450	2450	2450	2450	9800
Advertising	700		700	700	2100
Maintenance	1500	1500	1500		4500
Travel	600	600		600	1800
Entertainment	3500	3500	3500	3500	14000
Total	**30450**	**29750**	**29850**	**28950**	**124000**

15. Using A PivotTable To Consolidate Dissimilar Similar Data

Consolidate these four departmental budgets using the PivotTable approach. Department E budget data has given below. Create same data for departments like F, G & H

Budget data for Department E				
Details	**Q1**	**Q2**	**Q3**	**Q4**
Supplies	5000	5000	5000	5000
Salary	16700	16700	16700	16700
Contract Labour	2450	2450	2450	2450
Advertising	700	1800	700	700
Maintenance	1500	1500	1500	3500
Travel	600	600	2500	600
Entertainment	3500	3500	3500	3500

16. BENFORD'S LAW

Benford's Law predicts the occurrence of digits in large sets of data. Simply put, this law maintains that we can expect some digits to occur more often than others. For example, the numeral 1 should occur as the first digit in any multiple-digit number about 30.1% of the time, while the numeral 9 should occur as the first digit only 4.6% of the time. We also can apply the law to determine the expected occurrence of the second digit of a number, the first two digits of a number and other combinations.

A Note of Caution

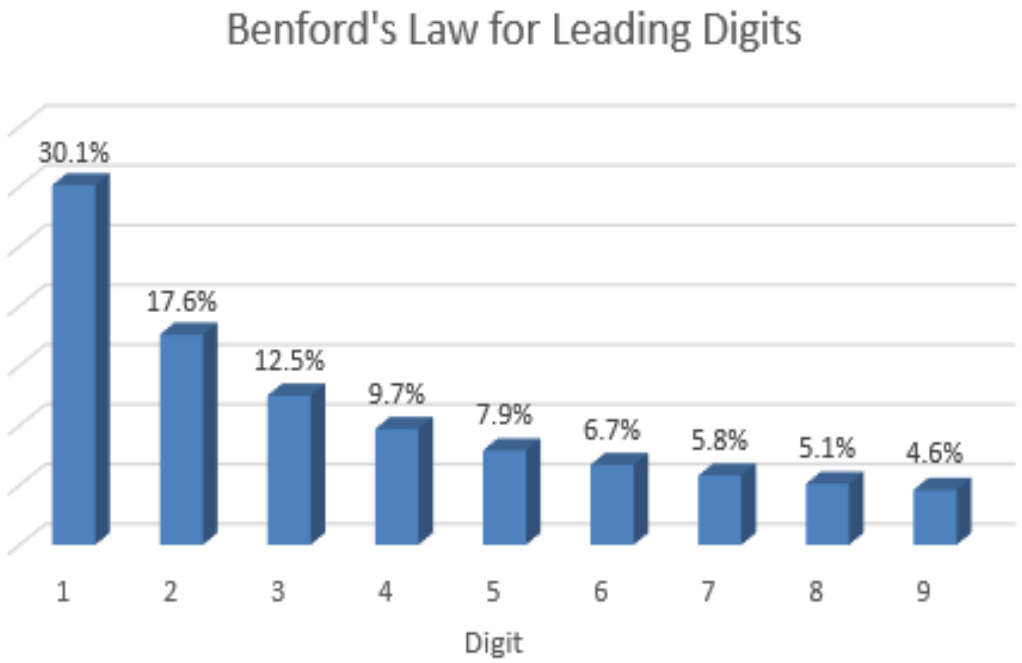
Benford's Law is not effective for all financial data. If the data set is small, the law becomes less accurate because there are not enough items in the sample and so the rules of randomness don't apply—or at least apply with less predictability.

Also, if the data include built-in minimums and maximums, they also might not conform well to the law's predictions. For example, consider a petty-cash fund where all disbursements are between a $10 minimum and a $20 maximum. All first digits would be either 1 or 2, and the expected distribution of first digits would not apply. Likewise, when a company's major product sells for, say, $9.95, most sales totals will be a multiple of 995, again offsetting the value of the process. Finally, when a data set consists of assigned numbers, such as a series of internally generated invoice numbers, the data will not follow a Benford distribution.

Benford's law describes the relative frequency distribution for leading digits of numbers in datasets. Leading digits with smaller values occur more frequently than larger values. This law states that approximately 30% of numbers start with a 1 while less than 5% start

with a 9. According to this law, leading 1s appear 6.5 times as often as leading 9s! Benford's law is also known as the First Digit Law.

If leading digits 1 – 9 had an equal probability, they'd each occur 11.1% of the time. However, that is not true in many datasets. The graph displays the distribution of leading digits according to Benford's law.



From the following data base Applying Benford's Law using Excel functions LEFT & MID

Revenue

7200000
992000
720000
560000
512000
467000
450000
440000
420000
380000
316000
310000

305000
285000
280000
280000
280000
259000
248000
240000
240000
239000

17. DATA REGRESSION

Using Regression to Create Budgets & Using Budgets to Detect and Prevent Fraud

Excel provides the ability to extrapolate data from your accounting system to produce budgets, projections or forecasts using the least squares method of linear regression.

Shortcomings with the Data Analysis ToolPak's Regression Tool: Tool Pak Regression tool has a number of shortcomings, including:

1. Missing Functionality – Other regression tools offer hierarchical regression and case weighting, but Excel's tool does not.

2. Inadequate Diagnostic Charts - Several common diagnostic charts are not included in Excel (for example, scatterplot charts, residuals against predicted values, and normality plot of the residuals.) Charting typically goes hand-in-hand with forecasting to help visualize the results.

3. No Standardized Coefficients – Without a standardized coefficient, it may be difficult to interpret your results.

4. Inadequate Diagnostic Statistics – The lack of collinearity diagnostics makes it more difficult to understand the forecast data model, although Excel's PEARSON, RSQAURE and SKEW functions could be used to aide in understanding.

Regression Warning

Regression only works when the underlying data follows a consistent trend. If revenue has grown steadily for the past six years, then regression will likely project a reasonable value for year seven. However if revenue has jumped all over the board for the past six years, then regression will likely give you a worthless projection for year seven.

For example, consider that in the past five years gasoline prices jumped from $1.60 per gallon to more than $4.00 per gallon. If you use regression to predict gasoline prices for future years based on this prior increase, regression will likely predict gasoline prices in the $10.00+ per gallon range – but let's hope that such a prediction would be inaccurate – right?

From the given database below find out the Regression Analysis by using "Fill Handle Tool" and excel functions such as Slope, Intercept & Forecast

Sales forecast for different Companies for the first three day of the week.			
Company	**Sunday**	**Monday**	**Tuesday**
ABC Ltd.	455	1520	1567
Mudra Ltd.	540	1125	840
Mahesh & Sons.	398	1355	550
Kedia Logistics	1125	4500	2560
Total	**2518**	**8500**	**5517**