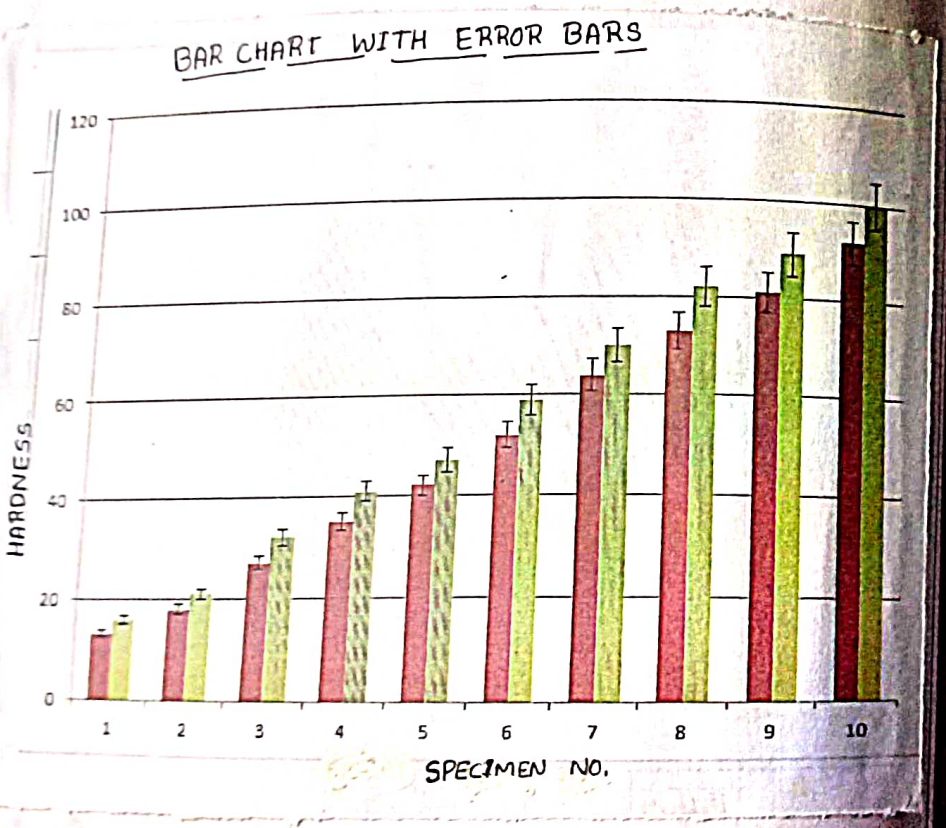


Name of the Experiment .....

Experiment No..... Date .....

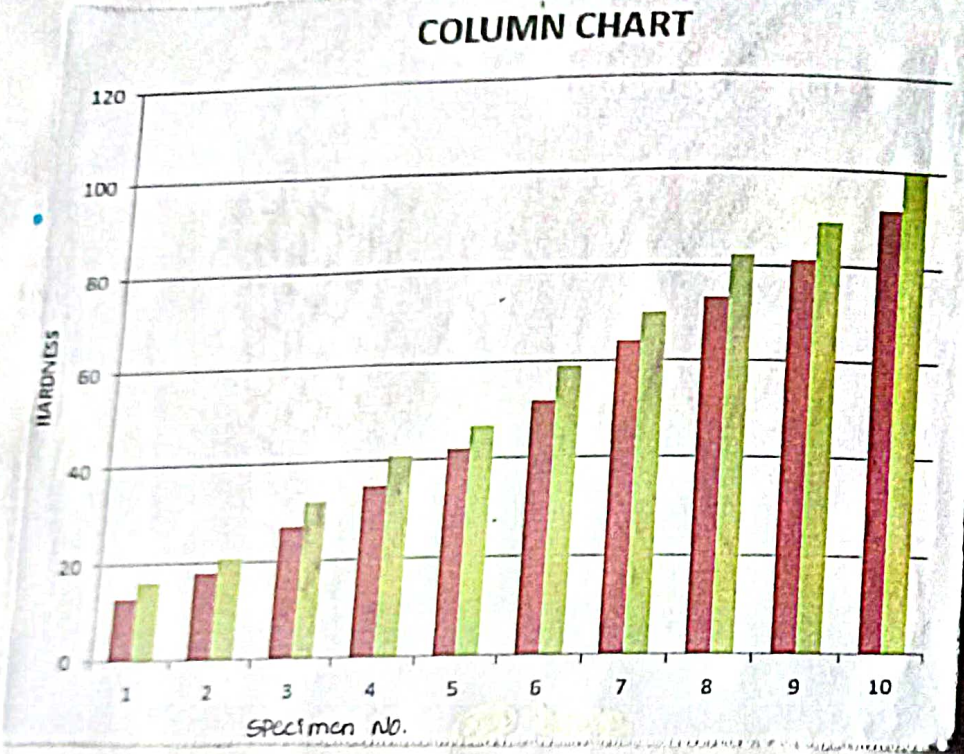
Page No.

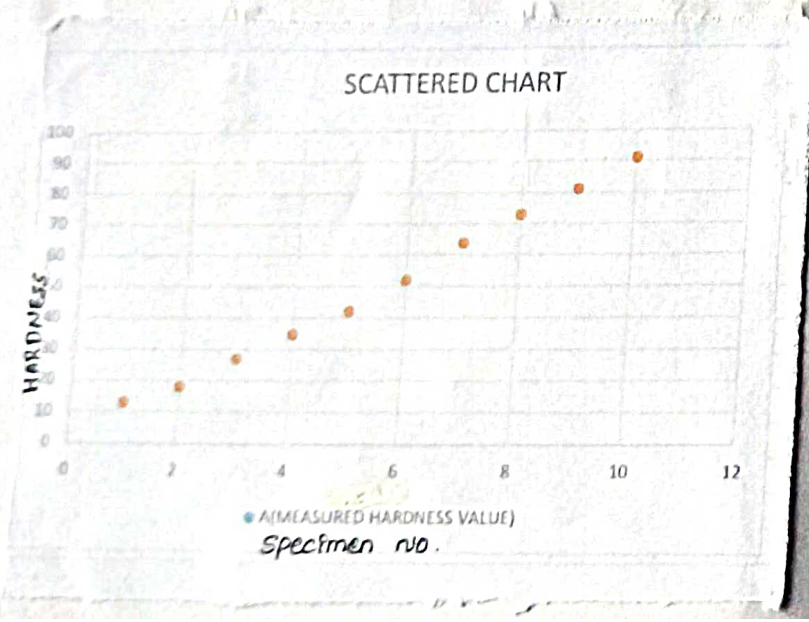
Simple Bar Chart

① To Create a simple bar chart for the example as shown below, represent a error bar

Select the table → select chart types → Select Column Chart → select the error bar.

A	B	C
Specimen no.	Measured Hardness value	Standard Hardness
1	13	16
2	18	21
3	27	32
4	35	41
5	42	47
6	52	59
7	64	70
8	73	82
9	81	89
10	92	100





Name of the Experiment .....

Experiment No. ..... Date .....

Page No.

Column Chart

2. Column Chart

Create a column chart for two input values as shown in table below

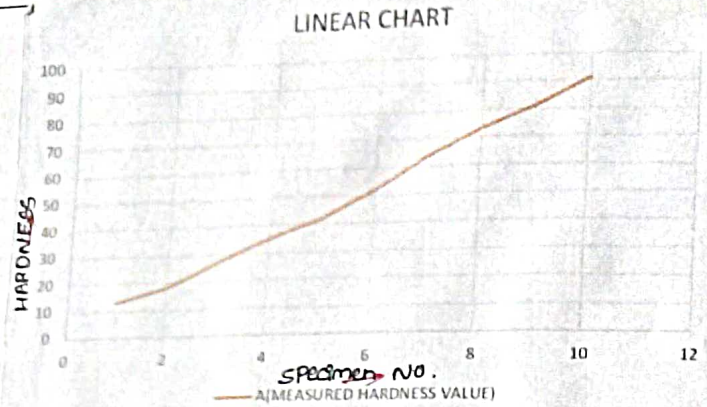
Select the table → Select chart types → select column chart

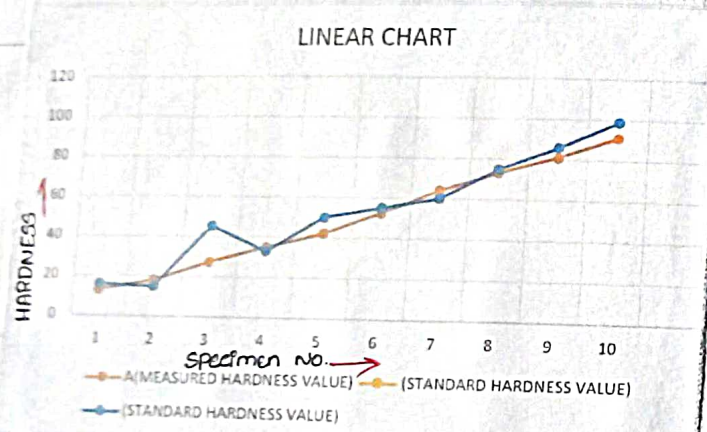
SL NO.	① MEASURED HARDNESS	② VHN Standard Hardness
1	13	16
2	18	21
3	27	32
4	35	41
5	42	47
6	52	59
7	64	70
8	73	82
9	81	89
10	92	100

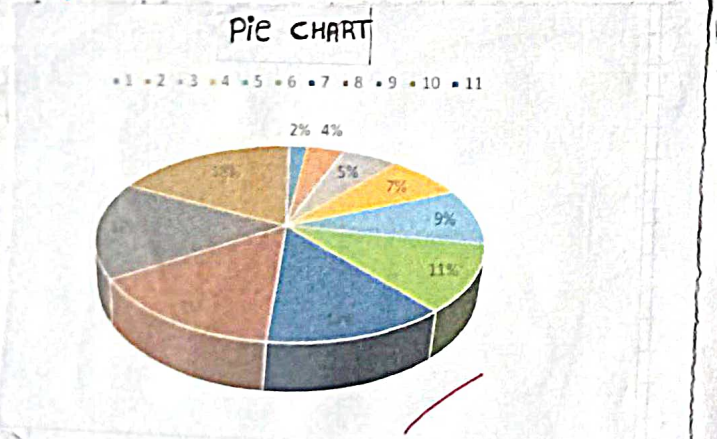
3 Scattered Chart

Create a Scattered chart for ~~two~~ input values as shown in table.

Select the table → Select chart types → select Scattered chart







Name of the Experiment .....

Experiment No..... Date .....

Page No.

4. linear chart

Create a linear chart for two input values as shown in table

Select the table → Select Chart types → Select linear chart

SL NO.	MEASURED HARDNESS	Standard HARDNESS
1	13	16
2	18	15
3	27	45
4	35	33
5	42	50
6	52	55
7	64	60
8	73	75
9	81	86
10	91	99

5. Pie chart

Create a Pie chart for the values shown in table

Select the table → Select chart types → Select Pie chart

SL NO.	HARDNESS
1	13
2	18
3	27
4	35
5	42
6	52
7	64
8	73
9	81
10	91

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Name of the Experiment .....

Experiment No. 9 Date .....

Page No.

1. Functions computing Sum, Average, count, max and min. Computing weighted average, trigonometric function exponential function, using the convert function to convert units

Procedure :-

* Open MS Excel sheet
* Enter the data

SL NO	USN	Name	MARKS	PERCENTAGE
1	1BI22ME001	A	58	58%
2	1BI22ME002	B	95	95%
3	1BI22ME003	C	66	66%
4	1BI22ME004	D	35	35%
5	1BI22ME005	E	89	89%
6	1BI22ME006	F	75	75%
7	1BI22ME007	G	79	79%
8	1BI22ME008	H	64	64%
9	1BI22ME009	I	39	39%
10	1BI22ME010	J	75	75%

SUM :-

* Enter Student name → wrap
* Enter student marks → Total → Auto Sum → Formula

" = Sum (A1 : A10) "

SUM	675
AVERAGE	67.5
COUNT	10
MINIMUM	35
MAXIMUM	95
SUMPRODUCT	675

AVERAGE :-

* Click the marks → Sheet → Formula → Average

" = AVERAGE (A1 : A10) "

	Number	Grade	Weighting Factor	No.*Factor
Test	50	35%	0.35	10.5
Assignment	10	15%	0.15	1.5
Exam	60	60%	0.5	30
			Weighted Average	42

CONVERSION (m,cm)		
SL NO.	VALUE	Foot
1	50	5000
2	30	3000
3	45	4500

Name of the Experiment ..... Page No.

Experiment No..... Date .....

COUNT :-

* Select the marks → Formula → Count no.

" =COUNT(A1:A10) "

MAXIMUM :-

* Select the mark → Formula → Maximum

" =MAX(A1:A10) "

MINIMUM

* Select the marks → formula → Minimum

" =MIN(A1:A10) "

WEIGHTED AVERAGE :-

* Select the Marks → Formula

" =SUMPRODUCT(A1:A5, B1:B5) / SUM(B1:B5)

TRIGONOMETRIC FUNCTION

* Enter the degree for angle for the function convert degree to number :-

=RADF(value * PI()/180)

" =RADIANS(value) "

Convert unit :-

" = Convert(30, "Cm", "m")

SL NO.	ANGLES	RADIAN	SIN	COS	TAN	COSEC	SEC	COT
1	0	0	0	1	0	#NAME?	1	#DIV/0!
2	30	0.523598776	-0.988031624	0.154251545	-6.405331197	-1.012113353	6.482921235	-0.156119952
3	45	0.785398163	0.850903525	0.525321989	1.619775191	1.175221363	1.903594407	0.617396646
4	60	1.047197551	-0.304810621	-0.95241298	0.320040389	-3.280725574	-1.04996469	3.124086951
5	75	1.308996939	-0.987781635	0.91175127	-0.420700951	-2.578270908	1.084891372	-2.376881169
6	90	1.570796327	0.893996664	-0.448073616	-1.995200412	1.118572407	-2.231776128	-0.501007293
7	120	2.094395102	0.580611184	0.814180971	0.71312301	1.722321006	1.228228166	1.402238316
8	145	2.530727415	0.467745162	0.883863374	0.529205278	2.137916287	1.131396582	1.889163502
9	180	3.141592654	-0.801152636	-0.598460069	1.33869021	-0.801152636	-1.67095526	0.746928016
10	210	3.665191429	0.467718518	-0.883877473	-0.529166692	2.138038074	-1.131378534	1.889178305
11	245	4.276056667	-0.044212563	0.999022147	-0.044255839	-0.044212563	1.000978811	-22.59588044
12	270	4.71238898	-0.176045946	0.984381951	-0.178839064	-0.176045946	1.015865843	-5.591618572
13	300	5.235987756	-0.99975584	-0.022096619	45.24474207	-0.99975584	-45.25579173	0.022102855
14	330	5.759586532	-0.132381629	0.991198822	0.133557089	-0.132381629	-1.008879327	7.487454831
15	360	6.283185307	0.958915221	0.283691051	3.380140414	0.958915221	-3.524960882	-0.295441208

SL NO.	FUNCTION	A	FORMULA	Root
1	SQUARE	2	"=A^2"	4
2	CUBE	5	"=A^3"	125
3	SQUARE ROOT	25	"=SQRT(A)"	5

Name of the Experiment ..... Page

Experiment No..... Date .....

Angles for the following function :-

Sin = " = SIN("value") "

Cos = " = COS("value") "

Tan = " = TAN("value") "

Cot = " = COT("value") "

Sec = " = SEC("value") "

Cosec = " = COSEC("value") "

EXPONENTIAL FUNCTIONS :-

* Enter the number → Calculate exponential

SQUARE = " = number^2 "

CUBE = " = number^3 "

SQUARE ROOT = " = SQRT(number) "

SL NO.	A	B	logical operator	Composition
1	25	29	A=B	FALSE
2	35	48	A<>B	TRUE
3	45	20	A>B	TRUE
4	55	70	A<B	TRUE
5	65	77	A>=B	FALSE
6	75	99	A<=B	TRUE

Name of the Experiment .....

Experiment No. 3 ..... Date .....

Logical operator

Enter the marks → formula → value

logical operators

"==" → equal to

"<>" → not equal to

">" → greater than

"<" → less than

">=" → greater than or equal to

"<=" → less than or equal to

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A=	1	5	6
	2	6	7
	6	8	9

B=	3	8	9
	5	1	4
	6	5	3

A+B=	4	13	15
	7	7	11
	12	13	12
A-B=	-2	-3	-3
	-3	5	3
	0	3	6
A*B=	64	43	47
	78	57	63
	112	101	113
A*25=	25	125	150
	50	150	175
	150	200	225
A(Transpose)=	1	2	6
	5	6	8
	6	7	9
Adjoint(A)=	1	-1.5	0.5
	-12	13.5	-2.5
	10	-11	2

Scalar=	25

Name of the Experiment .....

Page No.

Experiment No. 6 Date .....

Experiment NO. - 6

① Matrix operation using Excel spread sheet

① Adding of two matrices, ② multiplying a matrix by a scalar, ③ multiply two matrices, ④ Transpose a matrix, ⑤ Inverse of a matrix & solving system of linear equations

⇒ Enter the matrices → Select the cells of matrix → → enter the function → select the entered matrix → Ctrl + Shift + Enter.

A & B are two matrix

① Addition

" = A+B "

② Substraction

" = A-B "

③ Multiplication

" = MMULT(A,B) "

④ Scalar Multiplication

" = A* Scalar value "

(OR)

" = B* Scalar value "

⑤ Transpose

" = TRANSPOSE(A) "

(OR)

" = TRANSPOSE(B) "

⑥ Adjoint function

" = MINVERSE(A) "

(OR)

" = MINVERSE(B) "

COEFFICIENT OF VARIABLE			
Eqn1	1	2	-1
Eqn2	2	1	4
Eqn3	3	3	4
Variable	X	Y	Z
Value	7	-4	-2

	LHS	=	RHS
Eqn1	1	=	1
Eqn2	2	=	2
Eqn3	1	=	1

COEFFICIENT OF VARIABLE			
Eqn1	2	3	7
Eqn2	5	10	3
Eqn3	10	15	25
Variable	X	Y	Z
Value	26.3	-10.7	-1.5

	LHS	=	RHS
Eqn1	10	=	10
Eqn2	20	=	20
Eqn3	65	=	65

Name of the Experiment ..... Page No.

Experiment No..... Date .....

②

Solving a System of linear equations on excel using Solver

Note :-

How to add solver option.

→ Home → Excel option → add inch → manage → excel addinch → go → Solver addin → ok.

Question ①

1. $x+2y-z=1$
2. $2x+y+4z=2$
3. $3x+3y+4z=1$

How to Solve ?

→ Data → Solver optn → Select objectives → By changevariable
[LHS] [value cell]

Cell → add → Simplex LP → Make unconstruct vari-
(LHS & RHS) (Select)

-able non negative (OFF) → Solve.

Question ②

1. $2x+3y+7z=10$
2. $5x+10y+3z=20$
3. $10x+15y+25z=65$

①

A=	3	4
	1	2
2*A=	6	8
	2	4
3*B=	3	15
	6	9
2A-3B=	3	-7
	-4	-5

B=	1	5
	2	3

Scalar	2

Scalar	3

②

A=	4	2	-1
	3	2	0

	0	1
B=	2	3
	7	4

A*B=	-3	6
	4	9

	3	2	0
B*A=	17	10	-2
	40	22	-7

Name of the Experiment .....

Experiment No..... Date .....

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Problem

① $A = \begin{bmatrix} 3 & 4 \\ 1 & 2 \end{bmatrix}$ $B = \begin{bmatrix} 1 & 5 \\ 2 & 3 \end{bmatrix}$ find 2A − 3B ?

By using Scalar multiplication & Substract the matrices

2A = "=2*A"

3B = "=3*B"

② $A = \begin{bmatrix} 4 & 2 & -1 \\ 3 & 2 & 0 \end{bmatrix}$ $B = \begin{bmatrix} 0 & 1 \\ 2 & 3 \\ 7 & 4 \end{bmatrix}$

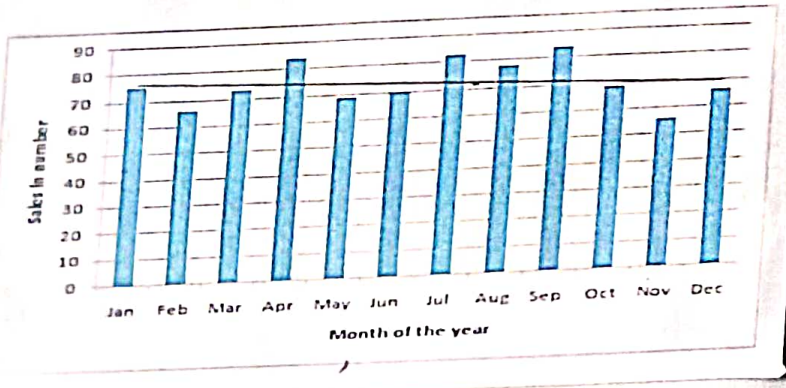
find A*B & B*A

By using matrix multiplication

A*B= " = MMULT (A, B) "

B*A = " = MMULT (B, A)"

Ans 25/01/24



Name of the Experiment .....

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Experiment No. 07 Date .....

Regression Analysis

① Trend line

Plot a graph of sales in a year & Show the Trendline

Slect the table → Column Chart → Trendline → Linear Trendline

Sl No.	Month	Sale
1	Jan	75
2	Feb	66
3	Mar	73
4	Apr	84
5	May	69
6	Jun	70
7	Jul	83
8	Aug	78
9	Sep	84
10	Oct	69
11	Nov	56
12	Dec	66

X	Y
1	1.25
2	2.3
3	4.6
4	5.8
5	6.2
6	7.9
7	10.5
8	12.6
9	15.8
10	18.6
11	19.5
12	23.2

Slope	1.979195804
Intercept	-2.17727273

Name of the Experiment .....

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⑤ Slop & Intercept

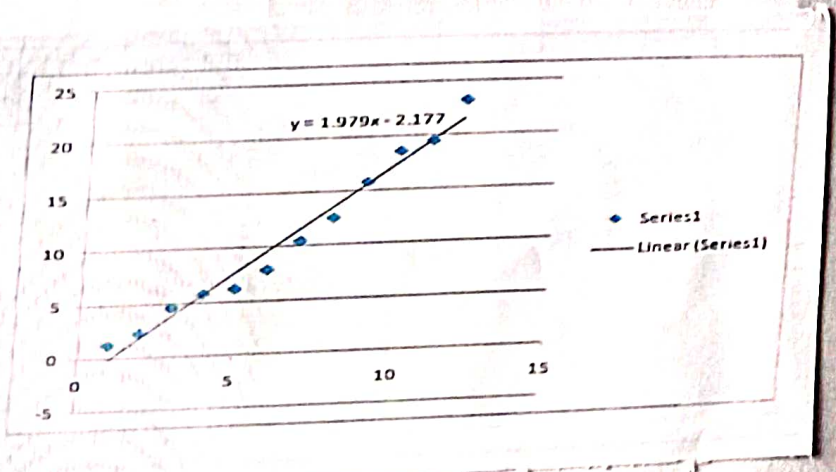
Select cell → enter function → select y axis → select x axis

y = y-axis value

Slope = " = Slope (y, x) "

x = x-axis value

Intercept = " = Intercept (y, x) "



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Method ②

Graphical Method

Select the value → Select Scatter graph → Linear Trendline

X	Y
1	1.25
2	2.3
3	4.6
4	5.8
5	6.2
6	7.9
7	10.5
8	12.6
9	15.8
10	18.6
11	19.5
12	23.2

Temperature	Density	Dynamic Viscosity	Kinematic Viscosity	Specific Heat Capacity	Thermal Conductivity	Prandtl Number
-20	1.3958	1.6222	1.1622	1.0054	0.02251	0.72467
-15	1.3687	1.6478	1.2039	1.0054	0.0229	0.72337
-10	1.3426	1.6731	1.2462	1.0055	0.0233	0.72212
-5	1.3175	1.6982	1.289	1.0055	0.02369	0.72092
0	1.2933	1.7231	1.3324	1.0056	0.02407	0.71977
5	1.2699	1.7478	1.3763	1.0057	0.02446	0.71866
10	1.2474	1.7722	1.4207	1.0058	0.02484	0.71759
15	1.2257	1.7965	1.4657	1.0059	0.02522	0.71657
20	1.2047	1.8205	1.5111	1.0061	0.0256	0.71559
25	1.1845	1.8444	1.5571	1.0063	0.02597	0.71465
30	1.1649	1.868	1.6036	1.0065	0.02634	0.71375
35	1.1459	1.8915	1.6507	1.0067	0.02671	0.71289
40	1.1275	1.9148	1.6982	1.0069	0.02708	0.71207

Temperature	Density	Dynamic Viscosity	Kinematic Viscosity	Specific Heat Capacity	Thermal Conductivity	Prandtl Number
2	1.28394	1.73298	1.34996	1.00564	0.02423	0.71933
23	1.19258	1.83484	1.5387	1.00622	0.02582	0.71503
37	1.13854	1.90082	1.6697	1.00678	0.02686	0.71256

Temperature	Density	Dynamic Viscosity	Kinematic Viscosity	Specific Heat Capacity	Thermal Conductivity	Prandtl Number
-25	1.40891538	1.60016923	1.11167308	1.005057692	0.022157308	0.72523
45	1.09699231	1.94138462	1.73711154	1.006834615	0.027487308	0.710557692
60	1.03015165	2.0145022	1.87113407	1.007215385	0.028629451	0.707413626

Name of the Experiment ..... Page No.

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④ Interpolation and Forcast

(Forcast)

Select the Cell → function → select finding value → Select

refering value → Select series value (ex: Temperature)

Note :- finding value

→ Out of the given value we can select the whole column.

function :-

" = FORCAST (x, y, z) "

x = finding value

line slope	1.9791958	-2.177272727	intercept
slope std error	0.10162571	0.747944975	intercept std error
R squared	0.97431215	1.215266741	std error
F statistic	379.289077	10	Dof
ss for regression	560.161892	14.76873252	ss for residuals

Name of the Experiment .....

Page No.

Experiment No..... Date .....

⑤ linest function

linest function calculate the statistics for a line by using squares method to calculate a straight line that best fits the given data and then returns an array that describe the line

"= linest (y axis, x axis, true, true)"

X	Y
1	1.25
2	2.3
3	4.6
4	5.8
5	6.2
6	7.9
7	10.5
8	12.6
9	15.8
10	18.6
11	19.5
12	23.2

Name of the Experiment .....

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Page No.

Regression :

How to open data Analysis ?

Main menu → Excel option → Addins → Excel Addins → Data analysis → OK

Graphical Representation

Data → Scatter Chart → Trendline → linear Trendline → Display eq' on Chart → Display R Square value on chart

x	y
1	1.25
2	2.3
3	4.6
4	5.8
5	6.2
6	7.9
7	10.5
8	12.6
9	15.8
10	18.6
11	19.5
12	23.2

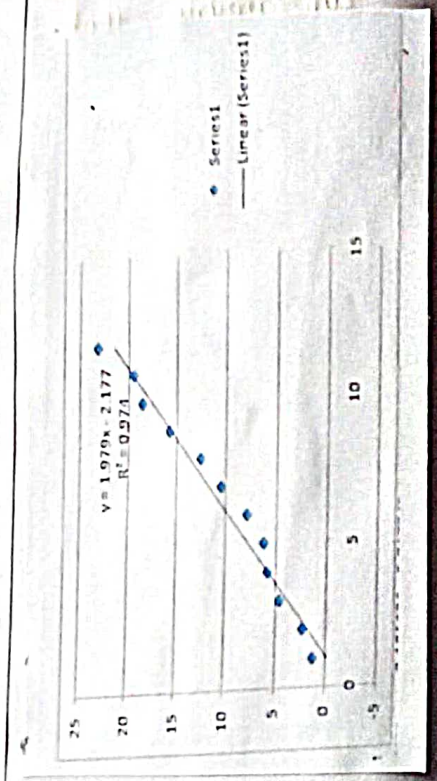
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.987579079
R Square	0.975112438
Adjusted R Square	0.972569376
Standard Error	1.144790572
Observations	11

ANOVA

	df	SS	MS	F	Significance F
Regression	1	465.9723636	465.9723636	355.5560488	1.53E-08
Residual	9	11.79490909	1.310545455		
Total	10	477.7672727			

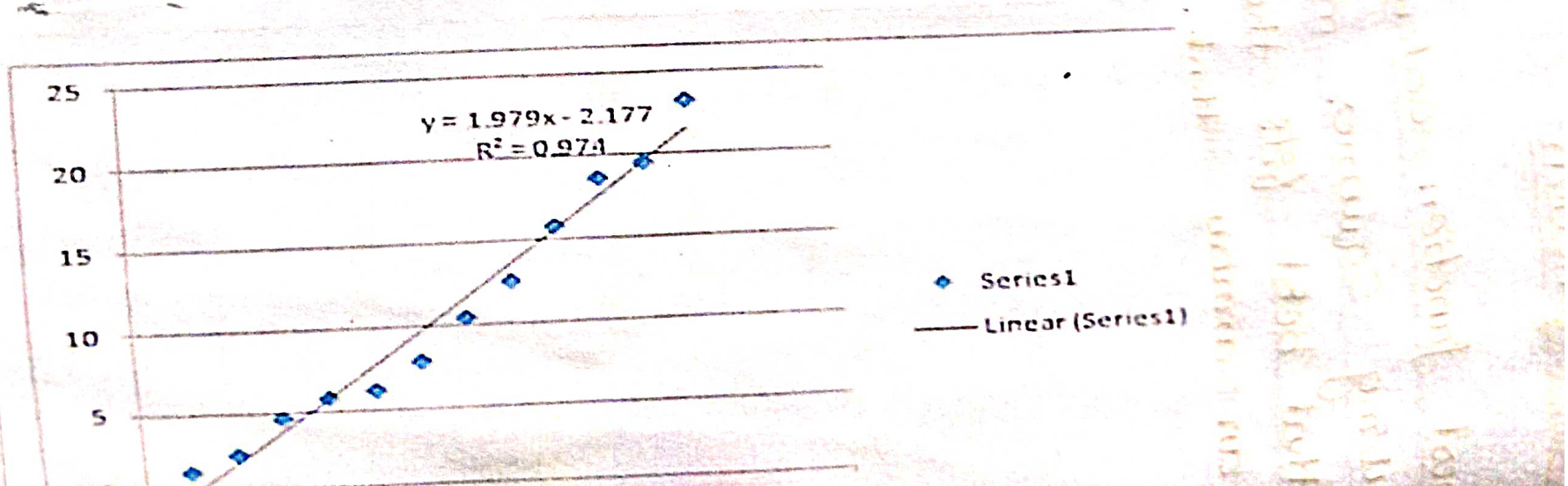
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-2.86181818	0.838408567	-3.413193295	0.007708	-4.758430128	-0.965206236	-4.758430128	-0.965206236
1	2.054181818	0.108951498	18.6 19391	1.53E-08	1.811263974	2.305099662	1.811263974	2.305099662

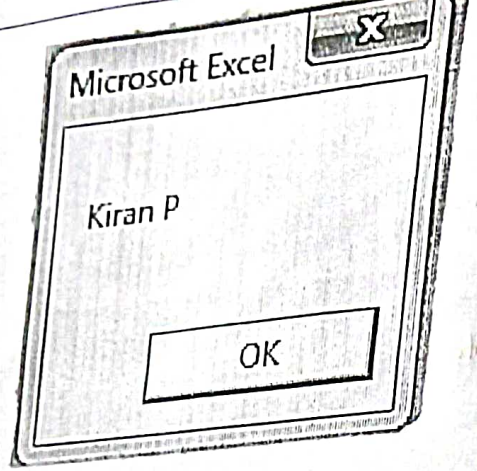


SUMMARY OUTPUT	
Regression Statistics	
Multiple R	0.987579079
R Square	0.975312438
Adjusted R Square	0.972569376
Standard Error	1.144790572
Observations	11
ANOVA	

	df	SS	MS	F	Significance F
Regression	1	465.9723636	465.9723636	355.5560488	1.53E-08
Residual	9	11.79490909	1.310545455		
Total	10	477.7672727			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-2.86181818	0.838408567	-3.413393295	0.0077081	-4.758430128	-0.965206236	-4.758430128	-0.965206236
1	2.058181818	0.109151498	18.619391	1.53E-08	1.811263974	2.305099662	1.811263974	2.305099662





O/P :

Input	→	out put
40	–	"Pass"
25	–	"Fail"

Name of the Experiment .....

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VBA → Virtual Basic For Applications

How to add Developer opt"

① main menu → popular → Developer → ok.

(or)

② main menu → customize → Developer – OK

How to start.

open developer → Insert → Module.

Ex: Sub First_name()
Msgbox "Kirana"
EndSub.

① Write a VBA Program to display the result as passed or failed using "If Statement"

Programme :-

```
Sub If_Statement()
If range(" ").Value >=35 than range(" ").value ="Pass"
EndSub
```

O/p = Pass.

(or)

```
Sub If_Statement()
If range(" ").value <35 than range(" ").value = "Fail"
End Sub
```

BIT

Sl No	Name	Marks	Result
1	A	35	Pass
2	B	50	Pass
3	C	25	Fail
4	D	96	Pass
5	E	12	Fail
6	F	63	Pass
7	G	40	Pass
8	H	28	Fail
9	I	77	Pass
10	J	34	Fail

Sl No	Value	Result
1	25	Positive
2	-11	Negative
3	0	Positive
4	-5	Negative
5	99	Positive
6	-65	Negative
7	41	Positive
8	-36	Negative
9	75	Positive
10	-99	Negative

Name of the Experiment ..If-Else Statement.. Page No.

Experiment No..... Date .....

2. Write VBA Programme to display the result for the following grades using if else statement

Programme

```
Sub If_else_Statement()
Dim x As Integer
for x = 2 To 12
If Cells(x,3).Value >= 35 Then
Cells(x,4).Value = "Pass"
else
Cells(x,4).Value = "Fail"
End If
next x.
```

Example : Positive & Negative number

```
Sub If-else_Statement()
Dim x as Integer
for x = 3 to 10
If Cells(x,3).Value >=0Then
 Cells(x,4).Value = "Positive"
else
Cells(x.4).Value = "Negative"
End If
next x
```

Name of the Experiment .....

Experiment No..... Date ..... Page No.

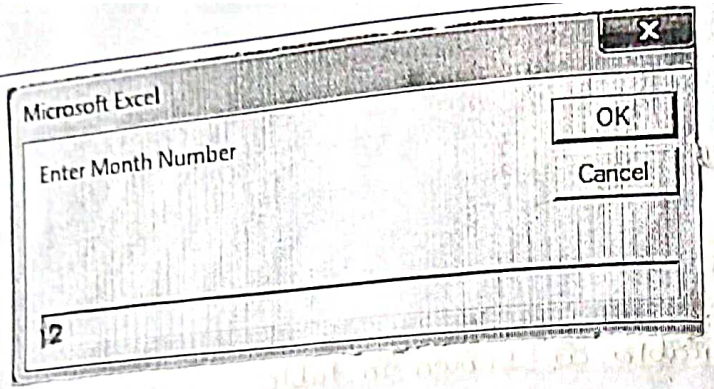
For Next Structure

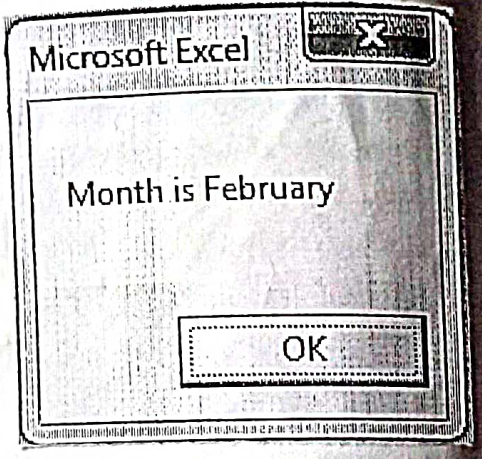
Write a VBA Programme by using for next Structure for squaring, cubing & any higher powers of variable as shown in table

No.	X*X	X*X*X
1	1	1
2	4	8
3	9	27
4	16	64
5	25	125
6	36	216
7	49	343
8	64	512
9	81	729
10	100	1000

Programme:-

```
Sub For_Next_Structure()
Dim x as Integer
For x = 2 to 12
Cells(x, 2) = x * x
Cells(x, 3) = x * x * x
next x
End Sub
```





Sl No.	Month
1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
10	October
11	November
12	December

Name of the Experiment .....

Experiment No..... Date ..... Page No.

Case Structure

① Write VBA Programme to display the month using number code by select case structure.

Programme :-

```
Sub select_case_Structure ()
Dim var As Integer
Var = Inputbox ("Enter month number")
For var = 1 To 12
Select case var
Case 1 : MsgBox "month is January "
Case 2 : Msg Box " month is February"
Case 3 : Msg Box " month is March "
Case 4 : Msg Box " month is April "
Case 5 : MsgBox " month is May "
Case 6 : MsgBox " month is June "
Case 7 : MsgBox " month is July "
Case 8 : MsgBox " month is August "
Case 9 : MsgBox " month is September "
Case 10 : MsgBox " month is October "
Case 11 : MsgBox " month is November "
Case 12 : MsgBox " month is December "
End select
next var
End Sub
```

Name of the Experiment .....

Experiment No..... Date ..... Page No.

5. For Each – Next Structure

Write a VBA Programme by using for each next Structure for the numbers given in 1st column as shown in table and display the numbers in message box

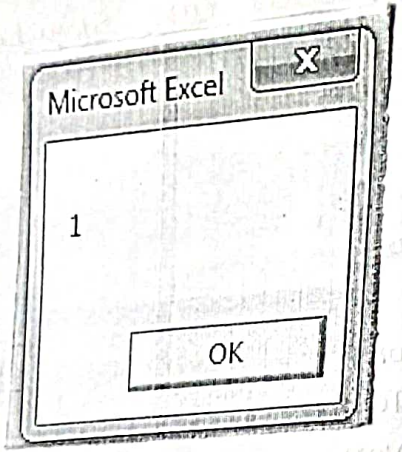
Programme :

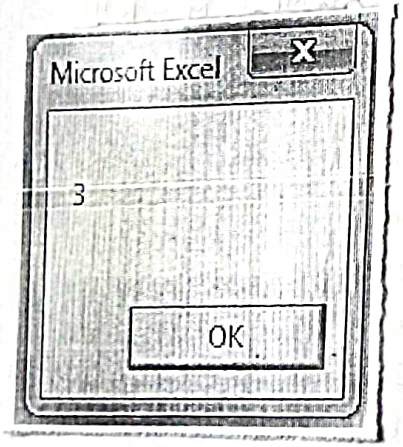
```
Sub for_Each_Next_statement()
Dim cell As Integer
For Each x In Range("A1:A10")
MsgBox x.value
Next x
End Sub
```

Input :-

1
2
3
4
5
6
7
8
9
10

output :-





Number	Solution
20	40
35	55
40	60
60	80

Name of the Experiment .....

Experiment No..... Date ..... Page No.

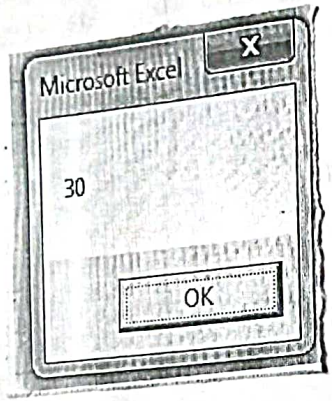
6. Do while loop

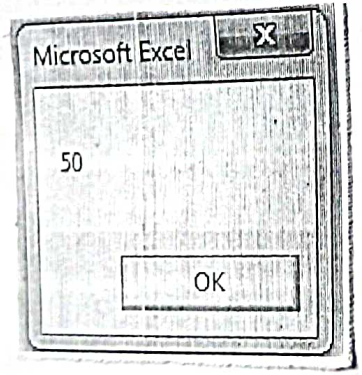
Write VBA Programme to add a number to existing cell by using do while loop as shown below

Programme :-

```
Sub do_while_loop()
Dim x As Integer
x=2
Do while cells(x,1).value <> ""
Cells(x,2).value = Cells(x,1).value +20
x = x+1
Loop
End Sub
```

output :-





Name of the Experiment .....

Page No.

Experiment No..... Date .....

7. 1D Array

Write a VBA Programme for 1D Array

Programme.

```
Sub Static_1D_array()
Dim marks(3) As Integer
marks(0) = 30
Marks(1) = 40
marks(2) = 50
marks(3) = 60

For i = 0 TO 3
MsgBox marks(i)
Next
End Sub
```

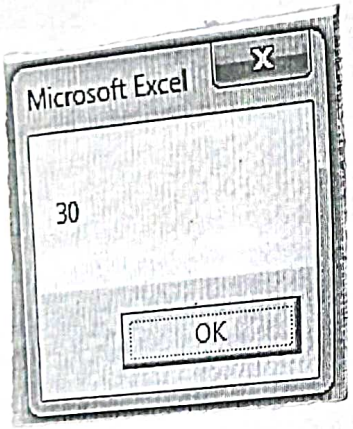
Input :-

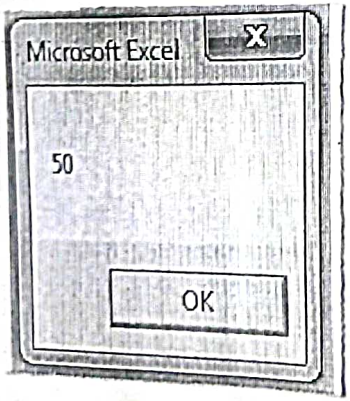
Marks
30
40
50
60

Input:

30	40	50
20	50	40
10	20	30

Output:





Name of the Experiment .....

Experiment No..... Date ..... Page No.

8 2D Array

Write VBA Programme for 2D array

Programme

```
Sub Static_2D_array
Dim A(3,3) As Integer
A(1,1) = 30
A(1,2) = 20
A(1,3) = 10

A(2,1) = 40
A(2,2) = 50
A(2,3) = 20

A(3,1) = 50
A(3,2) = 40
A(3,3) = 30

For i = 1 TO 3
For j = 1 TO 3
MsgBox A(i,j)
Next
Next
```

Input :-

X	Y	X+Y	X*Y	X/Y
20	40	60	80	0.5
30	50	80	150	0.6
40	60	100	240	0.66

output :-

X	Y	X+Y	X*Y	X/Y
20	40	60	80	0.5
30	50	80	150	0.6
40	60	100	240	0.66

Name of the Experiment .....

Experiment No. ..... Date .....

Page No.

Experiment - 8

Colour the active cell using Recording a macro

Developer → Record macro opt^n → macro name (any name)

→ Key → Description
(any alphabet)

① Retrieve the value of addition, multiplication & devision of two numbers of using recording a macro in Excel