DATE: __/__/2021

M T W T F S

Umair

lec # 31.

Question No.

Sol:

Given that:

x	y	xy	x^2	y^2
6	0	0	36	0
3	3	9	9	9
9	3	9	45	9

$$r = \frac{n\Sigma x_i y_i - (\Sigma x)(\Sigma y)}{\sqrt{[n\Sigma x^2 - (\Sigma x)^2][n\Sigma y^2 - (\Sigma y)^2]}}$$

$$r = \frac{2(9) - (9)(3)}{\sqrt{[2(45) - (9)^2][2(9) - (3)^2]}}$$

$$r = \frac{18 - 27}{\sqrt{(90-81)(18-9)}} = \frac{-9}{\sqrt{9 \cdot 9}}$$

$$r = -9/9 = -1$$

$$\boxed{r = -1}$$

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Q#3

Sol:

Given that

x	y
4	5
6	10
11	9
9	12
30	36

We want to find.

$$a = \bar{y} - b\bar{x}$$

"b" is Given that

$$b = 0.5$$

Then,

$$\bar{y} = \Sigma y / n$$

$$\bar{y} = 36/4 = 9$$

$$\bar{x} = \Sigma x / n$$

$$\bar{x} = 30/4 = 7.5$$

Now,

$$a = \bar{y} - b\bar{x}$$

$$a = 9 - (0.5)(7.5)$$

$$a = 9 - 3.75$$

$$\boxed{a = 5.25}$$

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x_i
3
3
7
7
9

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Question:

Sol:

X_i	Y_i	$X_i Y_i$	X_i^2	Y_i^2
3	2	6	9	4
3	9	27	9	81
7	6	42	49	36
7	9	63	49	81
20	26	138	116	204

For Reg. Line

$$\dot{y} = a + bx$$

So, ~~the~~ for the slope.

$$b = \frac{n\Sigma x_i y_i - (\Sigma x)(\Sigma y)}{n\Sigma x_i^2 - (\Sigma x)^2}$$

$$b = \frac{4(138) - (20)(26)}{4(116) - (20)^2}$$

$$b = \frac{552 - 520}{464 - 400}$$

$$b = \frac{32}{64} \qquad 34/64$$

$$b = 32/64$$

$$\boxed{b = 0.5}$$

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For intercept.

$$a = \bar{y} - b\bar{x}$$

$$\bar{y} = \frac{\Sigma y}{n}$$

$$\bar{y} = 26/4$$

$$\bar{y} = 6.5$$

$$\bar{x} = \Sigma x / n$$

$$\bar{x} = 20/4 = 5$$

$$b = 0.5$$

Now,

$$a = \bar{y} - b\bar{x}$$

$$a = 6.5 - 0.5(5)$$

$$a = 6.5 - 2.5$$

$$a = 4$$

$$\boxed{a = 4}$$

Now,

for line Reg.

$$y = a + bx$$

$$\boxed{y = 4 + 0.5x}$$

Now.

intercept =

slope =

$$y = 4 + 0.5x$$

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Lec # 32

Question # 1

Sol

Given that:

$$y = 7 + bx \longrightarrow (i)$$

also Given that

$$y = 19$$

$$x = 3$$

Find value of:

$$b = ?$$

So.

we put the value in eq (i)

$$19 = 7 + b3$$

$$19 - 7 = b3$$

$$\Rightarrow b3 = 19 - 7$$

$$b3 = 5$$

$$b = 5/3$$

$$b = 1.6667$$

$$\boxed{b = 1.67}$$

*Sloved By:

BS Mathematic

Umair-Abbas*

DATE: __/__/2021

Q #2

Sol:

Given that

$$y = a + 4x \longrightarrow (i)$$

Also, Given that

$$y = 15$$

$$x = 3$$

Find value of:

$$a = ?$$

So, we put the given values in eq (i)

$$y = a + 4x$$

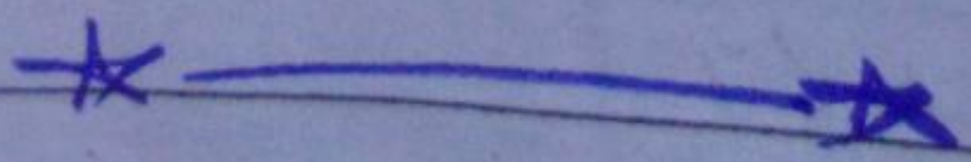
$$15 = a + 4(3)$$

$$15 = a + 12$$

$$\Rightarrow a + 12 = 15$$

$$a = 15 - 12$$

$$\boxed{a = 3}$$



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Question

Sol:

Given that

actual Value = 210

Trend = 250

Seasonal Variation = ?

We Know that

Variation = actual - trend

= 210 - 250

Variation = -4

★ ——— ★

جس دن ہو گا وہ اداس
دیکھ لینا آئے گا میرے پاس (Jani Umair)

DATE : __/__/2021

Question:

Sol:

Given point is

let $A = (5, 6)$

Given equation:

$$y = -4 + bx \longrightarrow (i)$$

Find the value of

$b = ?$

As the point $A = (5, 6)$

There $x_1 = 5$

and $y = 6$

put the value in eq (i).

eq. is $y = -4 + bx$

$$6 = -4 + b5$$

$$6 + 4 = b5$$

$$\Rightarrow b5 = 10$$

$$b = 10/5$$

$$\boxed{b = 2}$$

Solved By
BS Mathematic
Umair-Abbas

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Questions:

Sol:

Given that:

$$Y = a + bX$$

Given point are

A (7,9) and B (0,0)

Find the values:

$b = ?$

$a = ?$

we know that

$$Y = a + bx \longrightarrow (i)$$

For point A (7,9), in this

$x = 7$ and $Y = 9$

Now, put the values in eq (i)

$$9 = a + b7 \longrightarrow (ii)$$

$$9 - a = 7b \longrightarrow (ii)$$

$$\left(\frac{9-9}{7}\right) = b \longrightarrow (iii)$$

put the eq (iii) in (ii)

$$9 = a + b\left(\frac{9-9}{7}\right)7$$

$$9 = a + 9 - a$$

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Question

If $y = a + bx$, find value of

(a) when $y = 5$ and $x = 2$

Sol:

Given equation is:

$$y = a + bx \longrightarrow (i)$$

Also, Given that:

$$y = 5 \text{ and } x = 2$$

puting these value in equation (i).

So,

$$5 = a + b(2)$$

$$\Rightarrow a + 2b = 5$$

$$2b = 5 - a$$

$$2b = -4$$

$$b = -4/2$$

$$\boxed{b = -2}$$

(b) when $y = -7$ and $x = 4$

Sol.

Given equation is:

$$y = a + bx \longrightarrow (i)$$

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Also, Given that
$y = -7$ and $x = 4$
putting these value in equation (i).
So, we have.

$$-7 = 9 + b(4)$$

$$\Rightarrow 9 + 4b = -7$$

$$4b = -7 - 9$$

$$4b = -16$$

Dividing both sides by (4)

$$\frac{4b}{4} = \frac{-16}{4}$$

$$\boxed{b = -4}$$

"Solved By
BS Mathematic
Umair-Abbas"

If You have any problem in math 302. Contact me for solution:
Umair-Abbas BS Mathematic
0303-8523309

DATE: __/

Week
3
Q
Find
So,
We
$\neq 0$
Fore

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Lec # 33

Question.

Sol:

Given that is.

week no.	Actual sales	Forecast
3	7000	7500

Given that:

$$\alpha = 0.3$$

Find forecast of week 4.

So,

We know that

forecast week 4 = forecast 3 week
$+\alpha$ (Actual value 3 week
− forecast 3 week)

$= 7500 + 0.3(7000 - 7500)$

$= 7500 + 0.3(-500)$

$= 7500 - 150$

$= 7350$

Forecast week 4 = 7350

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Question

Sol:

Given that

Quarter	Actual	moving Average	Centred Avg.
1	72		
2	98	88.75	89.625
3	79	90.5	93.25
4	106	96.5	99.25
01	79	102	106.625
02	122	111.25	113.125
03	101	115	117.375
4	143	119.75	
1	94	126.5	123.125
2	141	130.75	128.625
3	128	138.5	134.625
4	160	139	138.75
1	125	140.75	139.875
2	143	147.5	144.125
3	135		
4	187		

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Lec # 34

Question 1.

Sol.

We have 3 hats and 4 shirts.

Hat	Shirts	Chosen
3	3	1

We use Permutation.

That is

$P\binom{3}{1} \cdot \binom{3}{1}$

So,

$= {}^3P_1 \cdot {}^4P_1$

We know that

$${}^nP_r = \frac{n!}{(n-r)!}$$

So,

$$= \frac{3!}{(3-1)!} \cdot \frac{4!}{(4-1)!}$$

$$= \frac{3 \times 2!}{2!} \cdot \frac{4 \times 3!}{3!}$$

$$= 3 \times 4$$

$$= 12$$

There is 12 way for chosen.

$P(m \cdot n)$

$P(3 \times 4)$

$= 12$

n

$m \cdot n$

$P =$

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Lec # 34

Question 1

Sol:

No. of hats $= m = 3$

No. of shirts $= n = 4$

No. of selected $= 1$

So.

Using the Porpertities of Permutation.

That is:

$$P(m \cdot n) = m \cdot n$$

$$= 3 \cdot 4$$

$$= 12$$

There is 12 ways of chosen one hat and one shirt.

* ——— *

DATE: __/__/2021 Question 2# M T W T F S

Sol:

Total number = n = 10

number of selected = r = 3

So,

The combination is = $\binom{10}{3}$

$$^nC_r = \frac{n!}{0!(n-r)!}$$

$$^{10}C_3 = \frac{10!}{3!(10-3!)}$$

$$= \frac{10 \times 9 \times 8 \times 7!}{3 \times 2 \times 1 \cdot 7!}$$

$$= 10 \times 3 \times 4$$

$$= 120$$

There is 120 ways for Pick a team of 3 people from a group of 10.

$$= \binom{3}{1}\binom{4}{1}$$

$$= 3 * 4$$

$$= 12$$

Solved By:

Bs Mathematic:

Umair Abbas:

DATE: __/__/2021

Question # 3

Sol.

Total number = $n = 10$

number of selected = $r = 3$

So,

As for arrangement

we use permutation.

$$nP_r = {}^{10}P_3$$

$$= \frac{10!}{(10-3)!}$$

$$= \frac{10 \times 9 \times 8 \times 7!}{7!}$$

$$= 10 \times 9 \times 8$$

$$= 720$$

There is "720" ways for list 3 favorite desserts in order, from a menu of 10.

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Question 4 #:

Sol.

Total number = n = 7

number of N = 1
" " U = 1
" " m = 1

~~Ans~~ * There is no letter is repeated, All letters are come only once a time.

So,

We use factorial.

= 7!

= 7 x 6 x 5 x 4 x 3 x 2 x 1

= 5040.

There is 5,040 different ways for arrangement the letter of the word "numbers".

★ ——— ★

DATE : __/__/2021

Question No 5

Sol.

Total number = n = 5

Number of "d" = 1

" " "i" = 2

" " "g" = 1

" " "t" = 1

So,

The Permutation is = $\binom{5}{1\ 2\ 1\ 1}$

$= \frac{5!}{1!\cdot 2!\cdot 1!\cdot 1!}$

$= \frac{5\times 4\times 3\times 2\times 1}{2\times 1\times 1\times 1}$

$= 60$

There is 60 different ways for arrangement the letters of word "digit".

*****

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Lec # 35

Question # 1

Sol.

~~n (S) =~~

Total number = n = 3

So.

For arrangement of book in a shelf, we use factorial.

= 3!

= 3 x 2 x 1

= 6

There is "6" different ways for arrangement of 3-books in a shelf.

(Solved By BS Mathematics Umair-Abbas)

★ ★

DATE: __/__/2021

Question No. 2

Sol:

We have a coin and we tossed it two times.

So, ...

The appearance of Head, Tail is:

$S = \{HH, HT, TH, TT\}$

★ _____ ★

Question No. 2

Sol:

Total number $= n = 12$

number of selected $= r = 5$

So,

The combination is $= \binom{12}{5}$

$${}^{n}C_{r} = \frac{n!}{r!(n-r)!}$$

$${}^{12}C_{5} = \frac{12!}{5!(12-5)!}$$

$$= \frac{12 \times 11 \times 10^{2} \times 9^{3} \times 8 \times 7!}{5 \times 4 \times 3 \times 2 \times 1 \times 7!}$$

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${}^{12}C_{5}$

These
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Num

1,

Each

P(1)

P(2)

P(3

P(4

P

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Question No. 2

If we throw a die the following Sample Space. is Appear.

$S = \{1, 2, 3, 4, 5, 6\}$

$n(S) = 6$

Let A be the event of odd number.

So,

$A = \{1, 3, 5\}$

Let

B is the event of even number

$B = \{2, 4, 6\}$

Let C is the event of exceeding 4.

$C = \{5, 6\}$

According to condination

The event of odd number And exceeding 4 appear is:

$A \cap C = \{1, 3, 5\} \cap \{5, 6\}$

$= \{5\}$

DATE: __/__/

when

follo

1,2

1,3

S =

1,4

1,5

1,6

n

Accor

Let

Prob

T

whic

So,

n

Th

is

Question #3

Sol:

When two dice are volled, the following sample space appear.

$$S = \begin{bmatrix} 1,1 & 2,1 & 3,1 & 4,1 & 5,1 & 6,1 \\ 1,2 & 2,2 & 3,2 & 4,2 & 5,2 & 6,2 \\ 1,3 & 2,3 & 3,3 & 4,3 & 5,3 & 6,3 \\ 1,4 & 2,4 & 3,4 & 4,4 & 5,4 & 6,4 \\ 1,5 & 2,5 & 3,5 & 4,5 & 5,5 & 6,5 \\ 1,6 & 2,6 & 3,6 & 4,6 & 5,6 & 6,7 \end{bmatrix}$$

$n(S) = 36$

According to first conidition.

Let, A be the event that ~~Proba~~ Sum is equal to 1.

There is not outcome appear which Sum is equal to 1.

So,

$n(A) = 0$

$P(A) = \frac{n(A)}{n(S)} = \frac{0}{36} = 0$

The Probality that's Sum is equal to one is Zero.

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(b) Let, B the event that's sum is equal to 5.

$B = \{(1,4), (2,3), (3,2), (4,1)\}$

$n(B) = 4$

$P(B) = \frac{n(B)}{n(S)}$

$= 4/36 = 1/9$

(c) let, C is the event that sum is equal to less than 10.

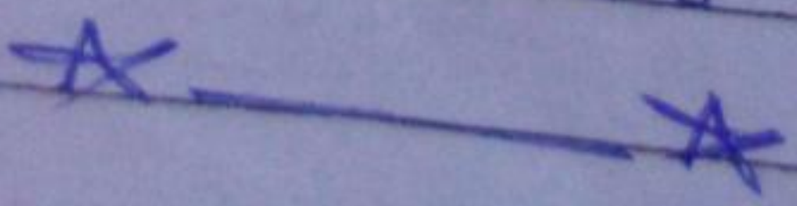
$C = \{(1,1)\ (2,1)\ (3,1)\ (4,1)\ (5,3)$
$(1,2)\ (2,2)\ (3,2)\ (4,2)\ (5,4)$
$(1,3)\ (2,3)\ (3,3)\ (4,3)\ (6,1)$
$(1,4)\ (2,4)\ (3,4)\ (4,5)\ (6,2)$
$(1,5)\ (2,5)\ (3,5)\ (5,1)\ (6,3)$
$(1,6)\ (2,6)\ (3,6)\ (5,2)\}$

$n(C) = 30$

$P(C) = \frac{n(C)}{n(S)}$

$= 30/36$

$= 5/6$



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Lec

Total num
num
"
" "
"
So,
The permut

Lec # 37

Question # 1

Sol.

Total number of Letter = n = 5

number of A = 1

" " " P = 2

" " " L = 1

" " " E = 1

So,

The permutation is = $\binom{5}{1\ 2\ 1\ 1}$

$$= \frac{5!}{1!\cdot 2!\cdot 1!\cdot 1!}$$

$$= \frac{5\times 4\times 3\times 2\times 1}{2\times 1}$$

$$= 5\times 4\times 3$$

$$= 60$$

Solved By:

BS Mathematic

Umair- Abbas

If you are facing any problem in math 102 and 302

Contact # 0303-8523309

Question #2

Sol.

$n = 5$

head appear $= x = 6$

Success $= p = \frac{1}{2} = 0.5$

fail/are $= q = 1 - p = \frac{1}{2} = 0.5$

So.

$$P(X = x) = \binom{n}{x} p^x q^{n-x}$$

$$P(X = 6) = \binom{10}{6} (0.5)^6 (0.5)^{10-6}$$

$$= \frac{10!}{6! \cdot (10-6)!} (0.015625)(0.5)^4$$

$$= \frac{10 \times 9 \times 8 \times 7 \times 6!}{6! \times 4!} \times (0.015625)(0.0625)$$

$$= \frac{10 \times 9^3 \times 8 \times 7}{4 \times 3 \times 2 \times 1} (0.000976525)$$

$$= (210)(0.000976525)$$

$$= 0.205078125$$

$$\boxed{= 0.205078125}$$

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Question #3

Sol.

Total = $n = 6$

Selected = $x = 4$

Failure / Die = $q = 0.75$

Success / Recover = $p = 0.25$

So,

$$P(X = x) = \binom{n}{x} p^x q^{n-x}$$

$$P(X = 4) = \binom{6}{4} (0.25)^4 (0.75)^{6-4}$$

$$= \frac{6!}{4!(6-4)!} \cdot (0.00390625)(0.5625)$$

$$= \frac{{}^{3}6 \times 5 \times 4!}{4! \times 2 \times 1} (0.002197265625)$$

$$= 15(0.002197265625)$$

$$= 0.032958984375$$

$$\boxed{= 0.03296}$$

"Solved By:

BS Mathematic

Umair-Abbas"

7:36 PM DATE: 26/04/2021 Data 1 786

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Practic Questions:

Lec # 23

1) Methods of presntation of data?

There is many method of presentation of a data:

(i) Text (ii) Data in rows
(iii) Tabular (iv) Graphic (v) charts and graphs

2) Difference b/w line graph and sector:

Line Graph:

A line graph plots data as points and then join them with a line.

∵ "A graphs in which point join with a line called line graph" (Umair)

Sector graph:

Sector graphs use the division of a circle into different sector.