

4 1

INVERSE			
negation of both by pathesis to the conclusion			
The page conditional statement page ou FT			
INVELSE IS TO TO			
कार्य पार्तिक क्षेत्र क्षेत्र कार्या कार्य			
contro positive			
computed by interchanging hypothesis			
conclusion of inverse			
TE US have readinger			
If we have conditional statement priq the			
contrapositive is 79 - 7p			
Prove contrapositive is indically equivalent to			
p-q			
P 9 1p. 79 p-9 79-10			
T T F F T			
T F F T (1 FT) / 1 FF 1 1 was proof			
FITFI			
F F T T T			
3 VI 47FII .			
from p-q only contropositive is against			



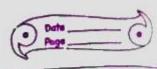
e) Bi-conditional or Bi-implication (4)

Let ps q be two propositions, the bi-interpolation of the picture ment page is piff any if query raider officiere toise · MOAT to EXPLOTE CO Op if & Only if 9 (P) P (FF) 9 m p is nectusary & sufficient conda forq O If p then q & conversely. parq == (p-q) 1 (q-p) SIGOT MIDIT . D 00 0



. : 10

: 300 O Tigo to the beach whenever it is a supply THOMET . day. - : 0 p: It is a sunny summer day of I so to the beach. Thing · CONVEISE 979 If I go to the beach then it is a supply it is a sunny summer day. 3019101 71 7 10 T do not go to the beach whenever it is not a LANDA LAWWEL 40A CODITO POLITICE If I do not go to the beach then it is not YOU ISMADL YAAVL O



(3)	liw I	werramet in	only if it snows today
	5		
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the 2 - Wonstorm 2714

Def

chap: 3

MOY

Let x(t) be a discrete time signal function

define for discrete values of 't' where 77 = t

period

Complina

K= 0, 1, 2, ...

Then, the z-transform of fo xiti is denoted by Flattil & is defined by

= [[[]] x] X= [[]] X

Here, '3' is complex variable

& 'I' is operator of 2-transform

YU Z ho!!.

" H= X (3)

x (NT) 3-4



Above expression is also called one sided or unilateral 2-transform.

The one-sided or unilateral 7-transform of requence of x(x) or x(n) is given by:

7[210]= 3 x (1) 3-1 = x (3) ...

7[2(h)] = 2 K-0

where significant 3' is complex variable

Z. is operator of f-transform.

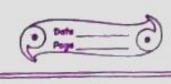
X(K) = \$ 1, 8, 4, 3, 7 3 × x(4).

It's 2- transform is

110)

. 111)

2 x(k) 3



Ihen.

For discrete signal function x(t) where -0 2+200

 $\frac{2[x(t)] = 2[x(t)]}{\sum_{k=-\infty}^{\infty} x(kt) 3^{-k}} = x(3)$

9791W 13' is complex variable.

T is sampling period.

Z' is operator of 1-transform

Above exp is called two-sided or bilateral 2-trai

Region of convergence 'Roc'

storm a residence of the trade that

" It is defined or the region where the E-transe eticks as a so are

The 2-transform of sequence x(n) is

Z[11(x)] = Z(x)3-x

K=0

ROC is the range of '3' for which E-transform 2927 94 1101



since \(\frac{1}{2}\) -transform is a power series it

converges when \(\chi(\kappa)\) \(\frac{3}{2}\) is absolutely

summable i.e. finite sum.

stated differently \(\frac{1}{2} \times 1/N \) 3-K \(\infty \) must be

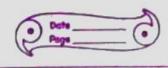
satisfied for convergence.

- o RDC of E-transform is indicated with the
- @ ROC CON NOT CONTAIN DAY POLE .
- (m) If x4k) is right sided sequence then kac extend outword from outermost pole of X(3)
 - Z transform of some sid e. / sedneve
 - O unit-step for

 L for defined by with = \$1 for 100

is unit step for .

-,,,,,



midstant - 2 to "39 b A ZUK3 = 5 1.3-1 K=0 . =1+3-1+3-2+3-3+... for 1 21

athi. · 7 [UK] = 3 , 13171

sum of geometric series.

Roc vier outside of circle 131=1



for x 710

2 Poly nomial for

10 tor K < 0

is pary nomial to

By deen of 2-tionsform

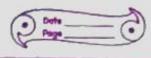
2 [x(N)] = 2 x(N)

K=1

 $\left(\begin{array}{c} a \\ \hline 3 \end{array}\right) \stackrel{h}{\longrightarrow} \left(\begin{array}{c} \cdots \\ \end{array}\right)$

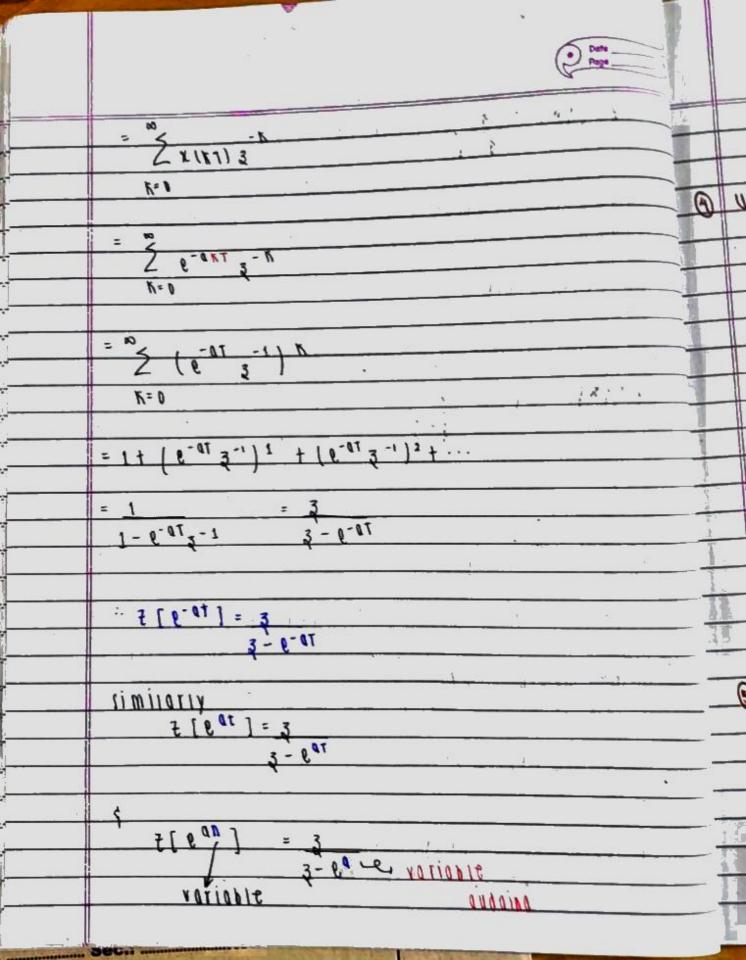
1-0 for 1 c

= 3 3 3 -0 +0 1 13 1 7 0



7 [01] = 3 for 13170 ROC lies duiside of circle 131=0 In particular. (1:1) F = [[] = [4]] F Q = +D 3[(-1)] = 3 THOUPEN F X 2 M 3 Exponential fo discrete time to spring 11) : KI e DOUX O t fo defined by for t 7/0 xiti = for * t < 0 is exponential for

MIDITAL 5 = [1111] Z



- ratioble 7[0-0K] : 3 3-0-0 @ unit-Impulse or Dirac-belta en 8(k) t For defined by 8 (K) = 5 1 for K=0 to for k to is Dilac-Della to 18:1 . By defa 7 [8 (K)] = 05 8 (K) 3-K = 8(0) + 8(1) 3-1 + 8(2) 3-2 + ... = 1+0+0+0... = 1 1 11 111 1=[(1)3] + ... 5 unit- Ramp fn the defined by x(t) = it for too is to forteo unit- kamp fo.

Date ____

sinut for t 710

for to

integer

1- [1001] 11

at indication to

F" defined by x(t) =

is sinuspidal for

E-tignsform of to where 'o' is tye

1011 18t x(t) = t"

x (17) = (17) x

solded at the isologe

By defo of 7-transform +

7 [x(t)] = 7 [x(KT)]

3 x (KT) 3-K

K=0

: · } [t'n] =

K = 0

1112 1 (KT) "3-" = X (3)

11)

Parks O

similarly.

NOW.

$$=\frac{1}{2}\frac{k_1}{(k_1)_0}\frac{(-k)_{3-k}}{(-k)_{3-k}}$$

$$\frac{d [7 (+^{n-1})] = -1 \times (3) [from eq^{n}(i)]}{13}$$

$$= -73 \qquad \left(\frac{3-1}{3-1} \right)^{2}$$

 $= -73 \qquad (3-1)\cdot 1 - 3\cdot 1$



+ [t] = T3

= -7, 3 4 [3]

 $= - \frac{1}{1} \frac{3}{3} \frac{(3-1)^2 \cdot 1 - 3 \cdot 2 \cdot (3-1) \cdot 1}{(3-1)^4}$

 $=- \Gamma^2 \frac{3}{3} + \frac{(3-1)^2 - 23 \cdot (3-1)}{(3-1)^4}$

=-123 13-11 (13-11-53]

(3-1) W3

= -[2] [3-1-2]

(3-1)3

-- 123 [-1-3]

(3-1)3

 $\frac{7[1^2] = 7^2 3 [3+1]}{(3-1)^5}$

