

Converting Simption (Numeric Sunctions). Date:	
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for nzeO then the indinte sum denoted by G(x,z) is defined as Sx+1,3+1, z²+- ~ G(x,z) = \$\frac{1}{5}\siz^{\frac{1}{5}}	Concrating Suntion (Numoric Sunctions); Date:
for no 0 then the indirect sum denoted by G(8,2) & defined as \$1 + 13 + 12 + 1 - \infty G(8,2) = \infty \$1 \text{ind} G(8,2) = \infty \$1 \text{ind} G(8,2) = \infty \$1 \text{ind} Generation func? Find generating function 2°, 2¹, 2², 2³,	be an sequence actioned
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G(\$, 2) = \$\Siz^{\frac{1}{2}} \\ \[\begin{array}{cccccccccccccccccccccccccccccccccccc	G(S, Z) & defined as S+S3+5222+
Out Superior there a signence of no. that is defined as 2°. Find generating function 2°, 2¹, 2², 2³, - Generation func? G(S, Z) = \$\frac{z}{z_{z_0}}\$ = \frac{1}{2} \frac{z}{z_0} \frac{z}{z_0}\$ = \frac{1}{2} \frac{z}{z_0} \frac{z}{z_0}\$ = \frac{1}{1-2} \frac{z}{z_0} \frac{z}{z_0}\$ = \frac{1}{1-2} \frac{z}{z_0} \frac{z}{z_0}\$ \frac{1}{1-2} \frac{z}{z_0} \frac{z}{z_0} \frac{z}{z_0}\$ \frac{z}{z_0} \frac{z}{z_0	
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Generation dunc? $G(S,Z) = \sum_{z=0}^{\infty} z^{z} z^{z}$ $= 2^{z} z^{$	Our Suppose there a sequence of no. who
Generation dunc? $G(S,Z) = \sum_{z=0}^{\infty} z^{z} z^{z}$ $= 2^{z} z^{$	destince as 2. tind generating function
$= \frac{2}{1+2z} + (2z)^{2} + \frac{2}{1-2z}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$ $= \frac{1}{1-2z} \qquad \begin{bmatrix} \vdots & a \\ & 1-31 \end{bmatrix}$	Sal 2, 21, 2, 2, S S. Z
$= 1+2z + (2z)^{2} +$ $= a \cdot 1 \qquad [; a]$ $1-2z \qquad [; a]$ $1-31$ One Sequence = ba^{2}. Find generating time ^ Greez. ba & ba^{2}.ba^{3}, ba & ba^{2}.ba^{3}, - b & a^{2}z^{3} $= b & a^{2}z^{3}$ $= b & (1+az+a^{2}z^{2}+\cdots)$ $= b$ $1-az$	
$= 1+2z + (2z)^{2} +$ $= a \cdot 1 \qquad [; a]$ $1-2z \qquad [; a]$ $1-31$ One Sequence = ba^{2}. Find generating time ^ Greez. ba & ba^{2}.ba^{3}, ba & ba^{2}.ba^{3}, - b & a^{2}z^{3} $= b & a^{2}z^{3}$ $= b & (1+az+a^{2}z^{2}+\cdots)$ $= b$ $1-az$	= 1 \$ 2 3 4
Que Sequence = ba^n . Find generating $dinc^n$ $G(x)$ Sequence = ba^n . Find generating $dinc^n$ $G(x)$ Sequence = ba^n . Find generating $dinc^n$ $G(x)$ $G(x) = \sum_{i=0}^n ba^i z^i$ $= b \sum_{i=0}^n a^i z^i$ $= b \left[1 + az + a^2 z^2 + \cdots \right]$ $= b$ $1 - az$	J=0
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Que Sequence = ba^{-} . Emol generating $d_{imc} = G(z)$ Let $ba \neq ba^{2} \cdot ba^{3}$, $G(S, Z) = \sum_{i=0}^{\infty} ba^{i} z^{i}$ $= b \sum_{i=0}^{\infty} a^{i} z^{i}$ $= b \left[1 + az + a^{2}z^{2} + \cdots\right]$ $= \frac{b}{1 - az}$	= 61 1-91
$(a (5, z) = \sum_{k=0}^{\infty} ba^{k} z^{k}$ $= b \sum_{k=0}^{\infty} a^{k} z^{k}$ $= b \left[1 + az + a^{2}z^{2} + \cdots\right]$ $= b$ $= b$ $= b$ $= az$ $= b$ $= az$ $= az$	
$(a (5, z) = \sum_{k=0}^{\infty} ba^{k} z^{k}$ $= b \sum_{k=0}^{\infty} a^{k} z^{k}$ $= b \left[1 + az + a^{2}z^{2} + \cdots\right]$ $= b$ $= b$ $= b$ $= az$ $= b$ $= az$ $= az$	To Cal accounting fine Gotz
$(a (5, z) = \sum_{k=0}^{\infty} ba^{k} z^{k}$ $= b \sum_{k=0}^{\infty} a^{k} z^{k}$ $= b \left[1 + az + a^{2}z^{2} + \cdots\right]$ $= b$ $= b$ $= b$ $= az$ $= b$ $= az$ $= az$	Que Sequence = ba. Em 01 genorations
$= b \stackrel{\text{def}}{=} a^{i}z^{i}$ $= b \left[1 + az + a^{2}z^{2} + \cdots\right]$ $= b$ $= b$ $= az$ $= b \text{ for eal results on } decomposition for all eal results on } decomposition for all eal results on decomposition$	Sol bate, ba, son,
$= b \stackrel{\text{def}}{=} a^{i}z^{i}$ $= b \left[1 + az + a^{2}z^{2} + \cdots\right]$ $= b$ $= b$ $= az$ $= b \text{ for eal results on } decomposition for all eal results on } decomposition for all eal results on decomposition$	$(g(SZ) = \sum_{i=1}^{\infty} ba^{i}Z^{i}$
$= \frac{b}{1-az}$ $= \frac{b}{1-az}$ $= \frac{b}{1-az}$	8.75
1-az	
1-az	= 1 [1+ a 2+ a ² z ² + · · -]
Oto Ctim decomposition for for expression!	
Que obtain Partial fraction decomposition for for expression! G(5, z) = 6-29 z and identify sequence 1-112+3022 Raving this expressions as generating function	1-92
Que obtain Partial fraction decomposition for dor expression! G(5, z) = 6-29 z and identify sequence 1-112+3022 Raving this expressions as	
G(5 z) = 6-29 z and identity sequence as 1-112+3022 Raving this exprassions as	Que obtain Partial fraction decomposition for do expression
1-112+302 having this expression function	G(SZ)= 6-29Z and identity sequence
	1-112+302 Raving this extracting function

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El.	$G(5,2) = 6-292$ $1-112+302^{2}$			
	ASS Partial Fraction			
	1-112+3022 = '3022-112+1			
	$= 302^2 - 62 - 5z + 1$			
	= 62 (52-1)-(Sz-1)			
	= (6z-1)(5z-1) $= (1-6z)(1-5z)$			
	(62-1) 3 - 292 1-1/2+30/2 ²)			
	(62-1) (62-1) (1-1/2+30/2 ²)			
	(62-1) A)+ (62)1) B)= 76-292			
	6A+8BYZ/+ (N/B) / 6-2/9Z			
	6A+ 5B = -149 -0 - (A+9)=16/AD			
	- BA + 56 B = -29/			
	(-6A'-BB =/30			
	R =			
	$\frac{1-52}{1-62} = \frac{6-292}{(1-52)(1-62)}$			
1	N=-1 . '8=7			
	1 7			
	1-52 1-62			
	Sequence 7-1.5" + 7.6"			
1830	And the second s			

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#	How to gonerate retacurrence relation using generating func
7	generating func's
	8(k) - 3 S(k-1) - 2 = 0, $k > 1$, $S(0) = 1Order = k(k-1) = 1$
	5(k) 2K - 35(k-1)2K =
StepI	maltiply whole egn with zk
step II	Summing up for K > 1
	$\frac{\sum S(k).2^{k}-3}{\sum S(k-1).2^{k}}=\frac{2}{\sum Z^{k}}$
1 THE	I I
- 4	Interest I Part
A 40	From definition of G(SZ) G(S,Z) = E S(k). Zk
	K201
	- S(0) + S(1) 2 + S(2) 2 + + Sh, 2 +
	G(5,2) = S(0) + \(\varepsilon\) S(k). Z ^k
	K=1 ·
	$G(S,Z)-J(0)=\sum_{k=1}^{\infty}J(k)Z^{k}$
	It Part = 56 12 1 K-1 2 K-1
	S(k-1) $Z^k = Z \mathcal{E} S(k-1) Z^{k-1}$
	change k to k+1 bezindinité series
	Subtract to the state of the st
	V = (D)
	= Z. G.(S, Z)

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-2	\$ 2K	The state of the s
۷ 2	[Z+22+ Z3+]
z 2	Z[1+2+22+	-]
2 2	2 2	
F	2 2	
mid of	G(3,2)- 5(0)-	32 G(S;Z) = 2Z
	1 2 3	1-2
Now obtain	in sequence for	+051
40 (0,2)	326(2)	10 =
682	1- + 72 6620	
3, 6, 2) - r- 32 h(s, z)	= 22
	02 61(3,2)	$\frac{2z}{1-z} + 1 = 2z + 1 - 3$
	5, Z) = 3z G (f, Z)	(-1/2
- My o	1,2) 32 01 (1,2)	= Z+1 1-Z
Company of the second	C (0, 2	
Age in a	G(S, Z) Z	Z+1 1-2) (1#32)
		1-2) (14/32)
×	R	1
× +	B = 1+2 1-32 (1-2)(1-1	77.
	()(-	50)
	A=-1	1 2 1 1 1
	B=2	Market Committee
Emal =	-1 1 2	
19,	1-32	-1.(1)"+ 2.(3)"
	132	$-1 + 2.3^n$