

Chapter 5 Identification of the Rogers-Ramanujan Type

(See Ch 7 of TEXT)

Theorem (Schur, 1926)

Let

$A(n) = \#$ of partitions of n into distinct parts $\equiv 1, 2 \pmod{3}$.

$B(n) = \#$ of partitions of n into parts $\equiv 1, 5 \pmod{6}$.

$C(n) = \#$ of partitions of n $\lambda = (\lambda_1, \lambda_2, \dots, \lambda_k)$ where

$\lambda_i - \lambda_{i+1} \geq 3$ if $3 \nmid \lambda_i$

& $\lambda_i - \lambda_{i+1} \geq 0$ if $3 \nmid \lambda_i$ if $3 \mid \lambda_i$.

Then

$A(n) = B(n) = C(n)$

for all $n \geq 1$.

Example ($n=12$)

PTNS enumerated by

$A(12)$	$B(12)$	$C(12)$
$11 + 1$	$11 + 1$	12
$10 + 2$	$7 + 5$	$11 + 1$
$8 + 4$	$7 + 1 + 1 + 1 + 1 + 1$	$10 + 2$
$7 + 5$	$5 + 5 + 1 + 1$	$9 + 3$
$7 + 4 + 1$	$5 + 1 + 1 + 1 + 1 + 1 + 1$	$8 + 4$
$5 + 4 + 2 + 1$	$1 + 1 + \dots + 1$	$7 + 4 + 1$