F6 Theorems: Let $\rho(n) = \# \lambda \vdash n$.

$\rho(5n-1) \equiv 0 \mod 5$. $\rho(7n+5) \equiv 0 \mod 7$. $\rho(11n+6) \equiv 0 \mod 11$. $\rho(11^3-13n+237) \equiv 0 \mod 13$. $\rho(999959^4 \cdot 29n+28995221336976431135321647) \equiv 0 \mod 29$.

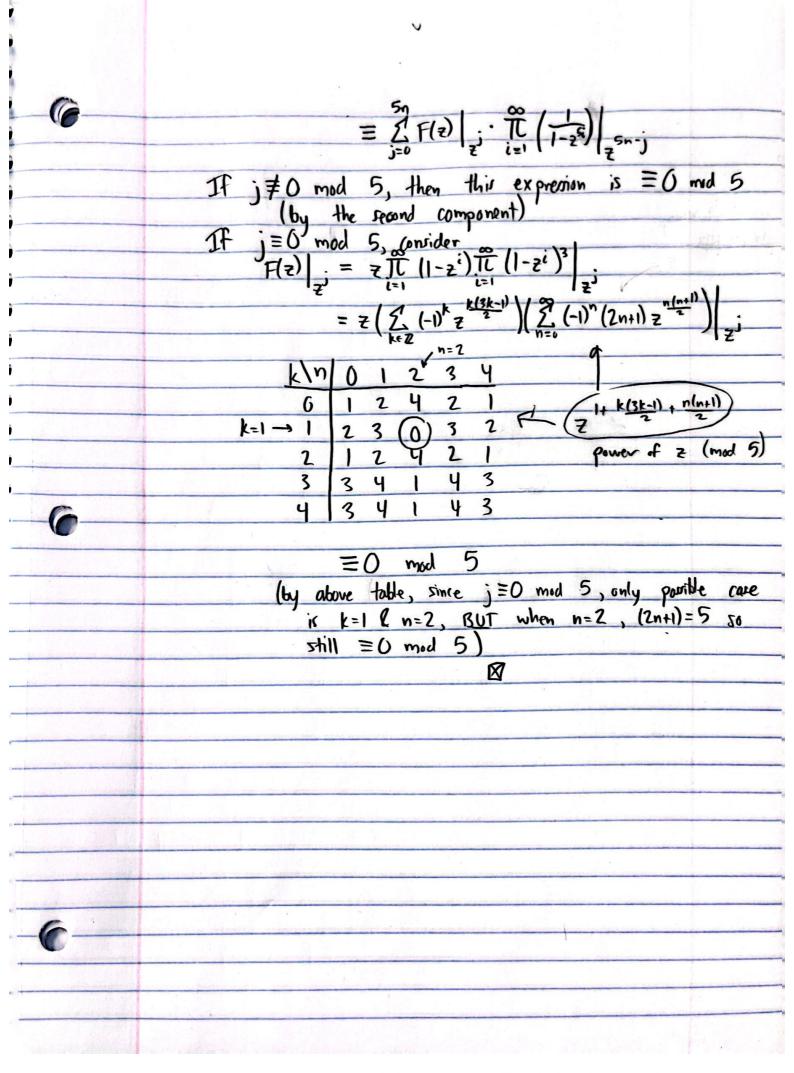
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Theorem: (ait ... +an) = (ait ... +an) mid p if p is prime.
            = (a, P+... + an P) mod p
          Corollary: n P = n mod p if p is prime.
prive by
          Corollany: Let f(z) = \sum a_n z^n \quad \text{w/} \quad a_n \in \mathbb{Z}.

Then f(z)^p = \sum (a_n z^n)^p

= \sum a_n (z^p)^n

= f(z^p)
          Recall OTT (1-2i) = 51 (-1) k 2 (3k-1)
                 Jacobi's triple product (1+x) TE (1-z) (1+x=) (1+x=2) = 2 x z
              (1-2")3= 2 (-1)" (2n+1) = 1 k triangular #
                    [Proven in online notes]
          Theorem: p(5n-1) = 0 mod 5.
            Proof: 2 p(n-1) = = = = = p(n-1) = n-1
                                = = [ (1-2') | [ (1-2i) ]
                   Therefore, P(5n-1) = F(z) T(1-z^i) of z^{5n} "extract the cuefficient
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