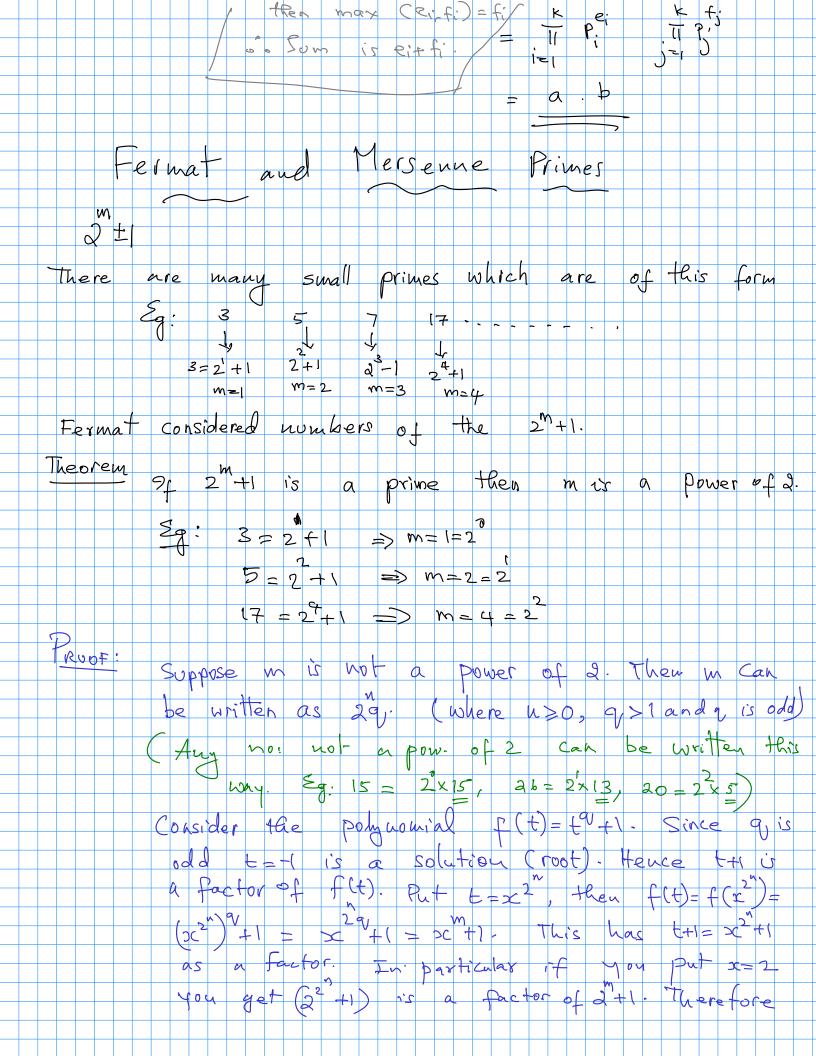


If Q is composite, then nove of the primes in 1 to P divides Q. Hance this leads to contradiction with the assumption since there has to a prime greater than I which divides Q thance prime was have to be in finite in no. GCD and LCM in terms of prime foctorization. Let a & b be two natural numbers. Then a & b, by Fundamental theorem of a vithmetic can be written as: $a = P_1 \cdot P_2 \cdot \dots \cdot P_K \times P_K = P_1 \cdot P_2 \cdot \dots \cdot P_K \times P_K = P_1 \cdot P_2 \cdot \dots \cdot P_K \times P_K = P_1 \cdot P_2 \cdot \dots \cdot P_K \times P_K = P_1 \cdot P_K \times P_K \times P_K = P_1 \cdot P_K \times P_K \times P_K \times P_K = P_1 \cdot P_K \times P$ $\frac{\sum CM}{\sum \alpha, bJ} = \frac{1}{1} \frac{P_0}{P_0}$ $[54,16] = 2.3 = 16 \times 27 = 6 \times 2$ $(a,b) [a,b] = 1/P_1$ $(a,b) [a,b] = 1/P_2$ $f = 1/P_3$ = 216 x 2 = 432 Collect the terms of the Same prime and write the expression as it prime (ei,fi) + max(ei,fi)] = to prime and write the expression as it prime as it prime and write the expression as it prime as it prime and write the expression as it prime as it



2 -11 15 Composide-2 41 => Fy (Fermat Number). Fernat nos. En which are prime are called fermat primes n=0 | n=1 | n=2 | n=3 | n = 1 Fo = 3 | Fi = 5 | Fi = 257 | F = 65537 All primes Euler proved that FS = 4294967297 is composite. Consider nos: of the form a-1 (which is a general gation of 2-1) What are the conditions as un should satisfy for am 1 to be a prime? If any is a prime then a=2 and mis Consider the polynomial F(a) = an 1. This has 1 as a root (Solu). There fore a-1 is a factor of Condition on a fa)-if a>2 teen a->1 and hence am-1 is Composite. It a =1 there f(a)=0 is invariably o for every m and hence not prime for any in there fore a= 2 is the possibility for fra to be prime for Condition Suppose in is Composite. Then m= pq where IK p, q / m.
on on Therefore 2 -1 = (2) -1. Taking t= 2

m 2 -1 - (2) -1. Taking t= 2

m 2 -1 - (2) -1. This clearly has t-1

