ID: AT+21024 12 hors from Name: Md. shahidul Islam

Modulare Another theorem attended to the matter of the (a+b)/m=(a/m+b/m) /m = (a/m) (a-b) xm = (caxm = bxm) xm +m) xm (a*b) /m = (a/m * b/m) /mm - X / m - (m x) / m ((x / m) + m) / m -x/m = (m - (x/m))/m = (-x/m+m)/mI from terment with * my hier x = m./x Inverse modulo: i) a mexist more when ged (a,m)=1. ii)m modulo ro a so modulo invense = x 27m (=xmex) 200), (a*x)/m=1) = -m> = iii) m prime 27 , a/m, 2*47/m, 3*49/m, --- (m-)*49/m 20 20 stor value distinct 2001 Because 1 * a = j * a (1/m) ni ka = (xixa (xm) ja za modulo invense exist अर्व त्यात में येर अर वार । alto as min = j-(NW) = This mid = m n as no coprime.

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iv) Fermatts little theorem: m prime zen; (a* 20 *3 0 * - - + (m-1) a) = ((m-1)!) 7 m > (am-1 *(m-1)!) / m = ((m-1)!) s/m 7. a -1 (m) d + m) = m) (d*) $f(x) = \frac{1}{2} (x, m) \rightarrow m \text{ always Prime}$ V) From fermatt little theorem; = ~ x Myerse modulo: (mex, Int = 1 me modulo: olubom especial mys) Fire = am-1 = 1 amole / m) so or oluham me (ii $\Rightarrow a^{m-2} \equiv \frac{1}{a} \left(\% m \right) (30 + 6) \cdot (60)$ in means with or me answer means in the $\frac{1}{a} \frac{1}{m} = a \frac{1}{m} \frac{1}{m}$ 139 9 1 1) d /2 miz de /2 m (d*n) /2 (b*n) /2 m 2101 Daym = b/m 2[M, d/m = b/m 20 Th PD: PT-21024 Name: Md. shahidul Islam

Question-1!
$$-17/23 = 2$$

 $\frac{501^{n}}{[-17/23 + 23]}/23 = 6/23$
 $= 6$ (Ans.)
 $AT: -a/m = (-a/m + m)/m$

Question-2: Find Multiplicative Inverse of
-13 upon modulo 23?

Sol": The connesponding value of -13 modulu 23 in modulo freld is

(-13/23 +23) 723 = 10 7.23

-10

We know the fermatis little theorem, $\frac{1}{a} \% m = \frac{m-2}{a} \% m \text{; where gcd } (a, m) = 1.$ $\frac{1}{-13} \% 23 = \frac{1}{10} \% 23$ $\frac{23-2}{3} \% 23 = \frac{3}{10} \% 23 = \frac{3}{$

$$= 10^{23-2}$$

$$= 7 (Ans.)$$