

Name

1 Use Fermat's Little Theorem to find the value of:

a) $4^{56} \pmod{7}$

b) $3^{95} \pmod{13}$

2 Use FLT to find the remainder of $13^{133} + 5$ on division by 19.

3 Deduce by the Fermat's Little Theorem that: $17 \mid (13^{16n+2}+1)$ for all $n \in \mathbb{Z}^+$.

4 Find the units digit of 7^{100} .

5 Find the remainder when 5^{62} is divided by 13.

6 Show that 51 divides $13^{59} - 10^{68}$.

7 Solve the congruence $x^{103} \equiv 4 \pmod{11}$.

8 If a googplex is $10^{10^{100}}$, what day of the week will it be in a googplex days time from now? (Today is a Monday).