$G(2,7)$ $p=11$ $q=5$ $x=?$

$K = A \cdot B \cdot G = 5 \cdot 11 \cdot G = 55G$

$2G = (12,16)$
$4G = (1,5)$
$5G = 4G + G = (1,12)$
$10G = (2,7)$
$20G = (12,16)$
$40G = (1,5)$
$50G = (1,12)$
$55G = (2,7)$

DSA $d=4$, $p=11$, $q=5$

a) $(11,5,4,2)$
b) $(11,5,5,7)$
c) $(11,5,5,9)$
d) $(11,5,7,3)$
e) $(11,5,2,4)$

$5^5 \equiv 1 \bmod 11$ OK
$4^5 \equiv 1 \bmod 11$ OK
$7^5 \not\equiv 1 \bmod 11$ NO
$2^5 \not\equiv 1 \bmod 11$ NO

$B = 4^4 \bmod 11 = 3$ NOW IN SOLVE.
$\beta = 5^4 \bmod 11 = 9$

$516^{5192} + 35^{4317} + 907^{7892} + 103^{5537}$ unit digit?

1) mod 10

$6^{5192} + 5^{4317} + 7^{7892} + 3^{5537}$

$6 + 5 + 1 + 3 = 15 \rightarrow 5$

$6^0 = 1$
$6^1 = 6$
$6^2 = 36$
$6^3 = 216$
$6^4 = 1296$
$n = 6$

$7^0 = 1$
$7^1 = 7$
$7^2 = 49$
$7^3 = 343$
$7^4 = 2401$
$\Rightarrow x = 7892 \bmod 4 = 0$
$n = 7^0 = 1$

$3^0 = 1$
$3^1 = 3$
$3^2 = 9$
$3^3 = 27$
$3^4 = 81$
$x = 5537 \bmod 4 = 1$
$\Rightarrow n = 3^1 = 3$

$5^0 = 1$
$5^1 = 5$
$5^2 = 25$
$5^3 = 625$
$n = 5$