122022010 Shrayank Mistry

Page No.:
Date: / /

(Q.1)

(e) $2x \equiv 4 \pmod{14}$

$(2x \bmod 14) = 4 \pmod{14}$

$(2x \bmod 14) = 4$

$x = 2, 9, 16, \ldots$ $x = a, a + 7\times1, a + (7\times2), \ldots$

where $a = 2$

$3x \equiv 9 \pmod{15}$

$(3x \bmod 15) = (9 \bmod 15)$

9

$x = 3, 8, 13, \ldots$ $x = a, a + 5\times1, a + (5\times2), \ldots$

where $a = 3$

$5x \equiv 20 \pmod{60}$

$(5x \bmod 60) = (20 \bmod 60)$

20

$x = 4, 16, 28, \ldots$ $x = a, a * (12\times1), a + (12\times2), \ldots$

where $a = 4$

(a) $4^{532} \bmod (11)$ as (p) ie 11 is prime

$4^{532} \bmod (11) \equiv 4^{10} \pmod{11}$

if $a^{p-1} \bmod (p) \equiv 1 \bmod (p)$

$\therefore$ $4^{11-1} \bmod (11) \equiv 1 \bmod (11)$ ie. 1