(5) Let A be a set of all 4-digit numbers (natural) whose exactly one digit is 7. Then the probability that a randomly chosen element of A leaves remainder 2 when divided by 5 is:

Soln: Total no. of cases =

n (when 7 appears on 1000's place)

+ n (when 7 does not appear on 1000's place)

$= (9\times9\times9) + (8\times9\times9\times3)$

$= 9\times9\times33$

Favourable cases =

n(last digit 7 & 7 appear once)

+ n(last digit 2 & 7 appear once)

$= (8\times9\times9) + [(9\times9) + (8\times9\times2)]$

$= 8\times9\times9 + 25\times9$

$\therefore\ P(E) = \dfrac{8\times9\times9 + 25\times9}{9\times9\times33} = \dfrac{97}{297}$