

First multiplying 2 prime numbers p and q

$$n = p \times q$$

$$n = 233 \times 349 = 81117$$

$$\varphi(n) = (p-1) \times (q-1)$$

$$\varphi(n) = 232 \times 348 = 80616$$

choose value between 100 and φ

$$e = 65537$$

$$d = e^{-1} \pmod{\varphi(n)} \rightarrow 24269$$

public key $(e, n) = (65537, 81117)$

private key $(d, n) = (24269, 81117)$

$$m = 75$$

$$c = m^e \pmod{n}$$

$$c = 75^{65537} \pmod{81117} = 40077$$

decrypt c

$$m' = 40077^{24269} \pmod{81117} = 75$$