

IT-Security Cryptography and Secure Communications

Exercise: Public Key Cryptography
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1. Execute the Square-and-Multiply algorithm for $3^{17} \bmod 23$.

Solution

$k = 0001\ 0001b$

$i = 4; f = 3 \Rightarrow$

$i = 3; f = 9 \Rightarrow$

$i = 2; f = 81 \bmod 23 = 12 \Rightarrow$

$i = 1; f = 144 \bmod 23 = 6 \Rightarrow$

$i = 0; f = (((6 * 6) \bmod 23) * 3) \bmod 23 = 16$