RSA - encryption and decryption

Given $\mathbf{Kp = (e, n)}$ and $\mathbf{Ks = (d,n)}$

➡ Encryption : $\mathbf{E_{kp}(m) = m^e \bmod n = c}$

➡ Decryption : $\mathbf{D_{ks}(c) = c^d \bmod n = m}$

➡ **$\mathbf{(m^e)^d \bmod n = (m^d)^e \bmod n = m}$**

The security of RSA

RSA Labs Challenge : factoring primes set

Key length	Year	Time
140	1999	1 month
155	1999	4 months
160	2003	20 days
200	2005	18 months
768	2009	3 years

Challenges are no longer active