RSA

$p = 5; \quad q = 7$

$n = pq = 35$

$\varphi(p,q) = 4 \cdot 6 = 24$

$ggT(e,\varphi) = 1$

$e = 11$

$\rightsquigarrow S_a = (11, 35)$

$ggT(24, 11)$

$24 = 2 \cdot 11 + 2$	$2 = 24 - 2 \cdot 11$
$11 = 5 \cdot 2 + 1$	$1 = 11 - 5 \cdot 2$
$2 = 2 \cdot 1 + 0$	

$11 - 5 \cdot 2 = 11 - 5 \cdot (24 - 2 \cdot 11) = 11 - 24 \cdot 5 + 10 \cdot 11 = 11 \cdot 11 - 24 \cdot 5$

$\rightarrow ggT(24, 11) = 1 = -5 \cdot 24 + 11 \cdot 11 \equiv_{\varphi} 11 \cdot 11$

$\rightsquigarrow S_p = (11, 35)$

$ggT(5,7) = 1 = 3 \cdot 5 - 2 \cdot 7$

$7 = 1 \cdot 5 + 2 \qquad 2 = 7 - 1 \cdot 5$

$5 = 2 \cdot 2 + 1 \qquad 1 = 5 - 2 \cdot 2$

$2 = 2 \cdot 1 + 0$

$5 - 2 \cdot 2 = 5 - 2 \cdot (7 - 1 \cdot 5) = 5 - 2 \cdot 7 + 2 \cdot 5 = 3 \cdot 5 - 2 \cdot 7$

$\begin{array}{r} 8 \cdot 35 \\ \hline 40 \\ 5 \\ \hline 280 \\ - 35 \\ \hline 245 \end{array}$

$4 \rightarrow 2$

$C = 4^{11} = 2^{11} = 2 \cdot 2^{10} = 2 \cdot 4^5 = 2 \cdot 4 \cdot 4^4 = 8 \cdot 256$

$\equiv_{35} 8 \cdot 11 = 88$

$\equiv_{35} 18$

$C^d = 18^{11} = 18 \cdot (18^2)^5 \equiv_{35} 18 \cdot 9 \cdot (9^2)^2 = 18 \cdot 9 \cdot (81)^2$

$\equiv_{35} 22 \cdot 16 \cdot 352$

$\equiv_{35} 2$