4.3.4.5 Example 2 RSA

① $p = 3$ $q = 11$

$n = p \times q = 3 \times 11 = 33$

$\phi(n) = (p-1)(q-1) = 2 \times 10 = 20$

$e =$	1	2	3	5	7
	X	X	✓	X	✓

② let choose $e = 3$

$e \times d \bmod \phi(n) = 1$

$d = \frac{k\phi(n)+1}{e}$

$= \frac{20k+1}{3}$

$k=1$, $d = \frac{21}{3} = 7$ ✓

② let choose $e = 7$

$d = \frac{20k+1}{7}$

$k=1$, $d = \frac{21}{7} = 3$ ✓