

$$4) a(19)$$

$$(a^{19+1} \cdot a) \bmod 19 = a \bmod 19$$

$$a^{17} \equiv 12 \pmod{19}$$

$$a^{p-2}$$

$$a^{19-2}$$

$$a^{17}$$

$$a^1 \equiv a \pmod{19}$$

$$a^2 \equiv a \times a = 81$$

$$81 \equiv 4 \pmod{19}$$

$$a^4 \equiv 4 \times 4 = 16 \equiv -3$$

$$a^8 \equiv (-3)(-3) \equiv 9 \pmod{19}$$

$$a^{16} (a \times a) \equiv 4 \pmod{19}$$

$$\frac{51}{19}$$

$$a^{17} = a^{16} \times a = 4 \times 9 = 36 \equiv 17 \pmod{19}$$