

$$7^2 \pmod{11}$$

$$(7^3 \cdot 7^3) \pmod{11} =$$

$$\begin{array}{r} 343 \\ - 341 \\ \hline 2 \end{array} \quad 2 \cdot 2 \cdot 1 = 4$$
$$4 \pmod{11} = \boxed{4}$$

$$3^9 \pmod{31} = 29$$

$$3^2 \cdot 3^6$$

$$27 \cdot 27 \cdot 27$$

$$19,683$$

$$19,654$$

$$\boxed{29}$$

$$2^3 \pmod{59} = 8$$

$$8 \pmod{59} = \boxed{8}$$

$$7^4 \pmod{11} = 3$$

$$7^2 \cdot 7^2$$

$$49 \cdot 49$$

$$25 - 22 = \boxed{3}$$

$$3^5 \pmod{31}$$

$$3^2 \cdot 3^3$$

$$9 \cdot 27 \pmod{31}$$

$$243$$

$$- 217$$

$$= \boxed{26}$$

$$2^7 \pmod{59}$$

$$128 \pmod{59}$$

$$- 118$$

$$= \boxed{10}$$

$$4^4 \pmod{11}$$

$$256 \pmod{11}$$

$$253$$

$$= \boxed{3}$$

$$8^3 \pmod{59} = \boxed{56}$$

$$29^5 \pmod{31} = \boxed{30}$$

$$841 \cdot 841 \cdot 29$$

$$837 \cdot 837$$

$$4 \cdot 4 \cdot 29$$

$$464 \pmod{31}$$

$$431 = \boxed{30}$$

$$512 \cdot 512 \cdot 8$$

$$472 \cdot 472$$

$$12,800$$

$$40 \cdot 40 \cdot 8$$

$$\boxed{12744}$$