

1. 23767^{45931} last digit (LD) = 3

$$= LD(7^{45931})$$

$$= LD(7^{45931 \div 4})$$

$$= LD(7^{31 \div 4})$$

$$= LD(7^3)$$

$$= LD = 3$$

[LD (powers of 7) = 7, 9, 3, ...]

✓ not ✗

2. 769321^{693251} last digit (LD) = 1

$$= LD(1^{693251})$$

$$= LD(1)$$

[1 power anything is 1]

$$= LD = 1$$

$$3. 5643^{989} \quad \text{last digit (LD)} = 3$$

$$= LD(3^{989})$$

$$= LD(3^{989 \times 4})$$

$$[LD(\text{powers of } 3) = 3, 9, 7, 1]$$

$$= LD(3^1)$$

$$= LD = 3$$

$$4. \quad 96378^{64397}$$

last digit (LD) = 8

$$= LD(8^{64397})$$

$$= LD(8^{64397 \times 4})$$

[LD powers of 8] = 8, 4, 2, 6]

$$= LD(8^1)$$

$$= LD = 8$$

5. 67946^{832} last digit (LD) = 6

$$= \text{LD}(6^{832})$$

$$= \text{LD}(6)$$

[6 power anything is 6]

$$= \text{LD} = 6$$