

# Enrichment 4-2

## Exponent Patterns

Complete the patterns. Then use your results to make the indicated predictions.

1.  $5^1 =$  \_\_\_\_\_

$5^2 =$  \_\_\_\_\_

$5^3 =$  \_\_\_\_\_

Predict:  
the tens digit of  $5^{74}$  \_\_\_\_\_

2.  $6^1 =$  \_\_\_\_\_

$6^2 =$  \_\_\_\_\_

$6^3 =$  \_\_\_\_\_

Predict:  
the ones digit of  $6^{113}$  \_\_\_\_\_

3.  $4^1 =$  \_\_\_\_\_

$4^2 =$  \_\_\_\_\_

$4^3 =$  \_\_\_\_\_

$4^4 =$  \_\_\_\_\_

Predict:  
the ones digit of  $4^{29}$  \_\_\_\_\_

the ones digit of  $4^{82}$  \_\_\_\_\_

4.  $9^1 =$  \_\_\_\_\_

$9^2 =$  \_\_\_\_\_

$9^3 =$  \_\_\_\_\_

$9^4 =$  \_\_\_\_\_

Predict:  
the ones digit of  $9^{114}$  \_\_\_\_\_

the ones digit of  $9^{223}$  \_\_\_\_\_

5.  $2^1 =$  \_\_\_\_\_

$2^2 =$  \_\_\_\_\_

$2^3 =$  \_\_\_\_\_

$2^4 =$  \_\_\_\_\_

Predict:  
the ones digit of  $2^{84}$  \_\_\_\_\_

the ones digit of  $2^{43}$  \_\_\_\_\_

$2^5 =$  \_\_\_\_\_

$2^6 =$  \_\_\_\_\_

$2^7 =$  \_\_\_\_\_

$2^8 =$  \_\_\_\_\_

6.  $1^2 =$  \_\_\_\_\_

$11^2 =$  \_\_\_\_\_

$111^2 =$  \_\_\_\_\_

$1,111^2 =$  \_\_\_\_\_

Predict:  
 $11,111^2$  \_\_\_\_\_

$111,111^2$  \_\_\_\_\_

7. Study the pattern of the ones digits in the powers of 3 and the powers of 7. Then predict the ones digit of each number.

a.  $3^{50}$  \_\_\_\_\_

b.  $7^{101}$  \_\_\_\_\_

c.  $3^{81}$  \_\_\_\_\_

d.  $7^{44}$  \_\_\_\_\_

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