

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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