The product of multiplying a number by itself is called a **power**. It is written as a **base number** and an **exponent**. The base number is the number being multiplied. The exponent shows how many times the base number is being multiplied by itself.

$$10^3 = 10 \times 10 \times 10 = 1{,}000$$

exponent

base number

factors

- -

Write out the factors and find out the value.

$2^2 =$ $2 \times 2 = 4$	$4^3 =$ $4 \times 4 \times 4 = 64$	$7^3 =$ $7 \times 7 \times 7 = 343$	$6^4 =$ $6 \times 6 \times 6 \times 6 = 1296$	$2^5 =$ $2 \times 2 \times 2 \times 2 \times 2 = 32$
$3^2 =$ $3 \times 3 = 9$	$10^4 =$ $10 \times 10 \times 10 \times 10 =$ $10{,}000$	$3^3 =$ $3 \times 3 \times 3 = 27$	$5^4 =$ $5 \times 5 \times 5 \times 5 = 625$	$8^4 =$ $8 \times 8 \times 8 \times 8 = 4096$

Write out the value.

$6^5 = 7776$	$8^3 = 512$	$9^3 = 729$	$10^5 =$ $100{,}000$	$2^7 = 128$
$2^{10} = 1024$	$4^2 = 16$	$6^3 = 216$	$7^4 = 2401$	$4^5 = 1024$

Power Play: Exponents

Write the value of the factors using exponents.

$2 \times 2 \times 2$ $\quad 2^3$	$3 \times 3 \times 3 \times 3 \times 3$ $\quad 3^5$	$6 \times 6 \times 6 \times 6 \times 6$ $\quad 6^5$	$8 \times 8 \times 8 \times 8$ $\quad 8^4$
4×4 $\quad 4^2$	$7 \times 7 \times 7$ $\quad 7^3$	$5 \times 5 \times 5 \times 5$ $\quad 5^4$	9×9 $\quad 9^2$
$6 \times 6 \times 6$ $\quad 6^3$	$3 \times 3 \times 3$ $\quad 3^3$	$10 \times 10 \times 10 \times 10$ $\quad 10^4$	11×11 $\quad 11^2$

Fill in all the missing numbers

Factors	Number To Given Power	Standard Notation
$3 \times 3 \times 3$	3^3	27
$2 \times 2 \times 2 \times 2 \times 2 \times 2$	2^6	64
$7 \times 7 \times 7 \times 7 \times 7$	7^5	16,807
$12 \times 12 \times 12 \times 12$	12^4	20,736

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