

"Working With Exponents" Handout

Mathematicians found a means to abbreviate repeated multiplication. Instead of writing: $2 \times 2 \times 2 \times 2 \times 2$, they write 2^5

The 2 is called the **base** and the 5 is called the **exponent**. The base is number that is repeatedly multiplied, and the exponent tells how many times to multiply the base times itself.

In the video clip the CyberSquad made a table of values that described the number of lily pads after each doubling. The beginning of the table of values is reproduced below. Complete the middle row of the table below.

Number of Doublings	0	1	2	3	4	5	6	7
Number of Lily Pads	1	2	4					
Number of Lily Pads written in exponential form	2^0	2^1	2^2					

Because the number of lily pads is constantly doubled, each of the numbers in the bottom row can be written as the number 2 raised to some exponent. In the bottom row write each number of lily pads using exponential form.

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Evaluate (determine the numerical value of) the following expressions which use exponents.

1. 2^4

2. 3^2

3. 5^3

4. 1^{100}

5. 10^2

6. 10^3

7. 4^2

8. Does $2^3 = 3^2$? Justify your answer.