The National Orthodox School Shmaisani

Indices

Think Tac Toe

Name: **Simplifying indices** **Teacher: Zain Hattar**

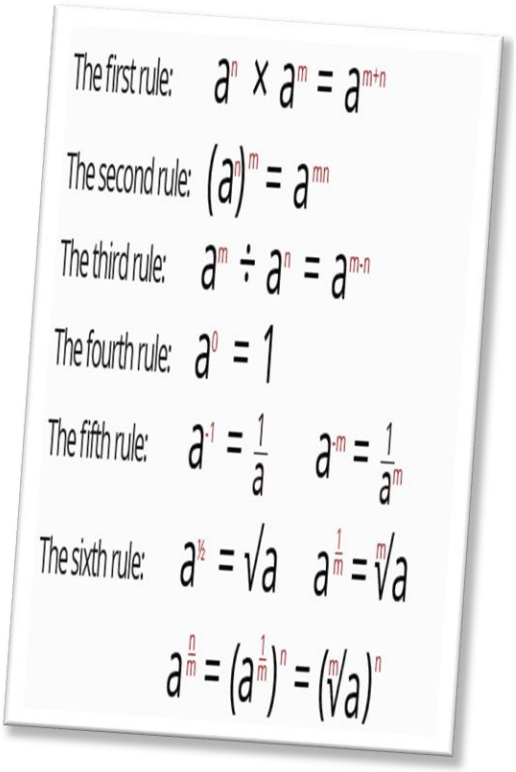
Indices Rules

An **index** tells us how many times a term has been multiplied by itself. The plural of **index** is **indices.** Indices can be positive or negative numbers.

Below is an example of a term written in index form:

4^3 ⟶ **4** is the base and **3** is the index.

Laws of indices provide us with rules for simplifying calculations or expressions involving powers of the **same base**.



Let's start! Choose three rectangles to simplify. They must go in a straight line.

Can you solve more?

$\frac{(3^7 \times 3^4)^2}{3^{10}} =$ $\frac{(5^6 \times 5^3)^3}{5^{11}} =$	$14^8 \times 14^5 =$ $6^9 \times 6^{-6} =$ $4^{-4} \times 4^4 =$	$7^8 \div 7^5 =$ $2^5 \div 2^5 =$ $3^7 \div 3^9 =$
$8^2 \times 8^5 =$ $11^9 \times 11^{-8} =$ $7^{-5} \times 7^5 =$	$\frac{(2^7 \times 2)^3}{2^{10}} =$ $\frac{(13^8 \times 13^3)^2}{13^{14}} =$	$31^7 \times 31^6 =$ $13^{12} \times 13^{-11} =$ $1^{-7} \times 1^7 =$
$26^8 \div 26^5 =$ $2^5 \div 2^5 =$ $3^7 \div 3^9 =$	$8^8 \times 8^5 =$ $7^9 \times 7^{-6} =$ $20^{-7} \times 20^7 =$	$\frac{(5^6 \times 5^3)^3}{5^{11}} =$ $\frac{(11^7 \times 11^4)^2}{11^{10}} =$

You can solve more!

How many straight lines did you get? _____