

## What Is Representing Repeated Multiplication in Exponential Form?

- When a numerical expression asks us to multiply a number by itself, it look like this:

$$6 \times 6$$

$$7 \times 7$$

$$12 \times 12$$

$$34 \times 34$$

- Repeated multiplication is multiplying the same number by itself 2 or more times such as:

$$30 \times 30$$



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- An exponent tells how many times to multiply a number by itself.

$$5 \times 5 \rightarrow 5^2$$

$$4 \times 4 \times 4 \rightarrow 4^3$$

$$10 \times 10 \times 10 \times 10 \rightarrow 10^4$$

## How to represent repeated multiplications in exponential form:

- When a number is multiplied by itself, this is called repeated multiplication:

$$3 \times 3 \quad 7 \times 7 \times 7 \times 7 \quad 5 \times 5 \times 5 \times 5 \times 5$$

- Another way to express this multiplication is to count the number of times the number is multiplied and place an exponent next to the number. The exponent is written smaller and goes to the right and slightly above the number.

- $30 \times 30 = 30^2$



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Try This

What are the expressions?

$$66 \times 66 \times 66 = \underline{\hspace{2cm}}$$

$$15 \times 15 = \underline{\hspace{2cm}}$$

$$9 \times 9 \times 9 \times 9 = \underline{\hspace{2cm}}$$

$$305 \times 305 \times 305 \times 305 \times 305 \times 305 \times 305 \times 305 = \underline{\hspace{2cm}}$$