Groups of experts tasks

A

$3^2 = 3 \cdot 3$

_____ to the power of _____ equals _____ multiplied by _____

$3^5 = 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

_____ to the power of _____ equals_____ multiplied by_____ multiplied by _____multiplied by _____multiplied by _____

$3^7 = 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 =$

_____ to the power of _____ equals _____ multiplied by _____ multiplied by _____ multiplied by _____multiplied by _____ multiplied by _____ multiplied by _____

It can be written by using brackets as follows

$(3 \cdot 3) \cdot (3 \cdot 3 \cdot 3 \cdot 3 \cdot 3)$

And expressed with exponents

$$3^2 \cdot 3^5 = 3^{2 \ldots 5}$$

Another example can be _____

(make up an example with different base and different exponent and check it)

So the general rule is

$$a^x \cdot a^y = a^{x \ldots y}$$

that can be read as:

In a **product of powers** with the same _____

you leave the same _____ and _____the exponents

Groups of experts tasks

B

$3^2 = 3 \cdot 3$

_____ to the power of _____ equals _____ multiplied by _____

$3^5 = 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

_____ to the power of _____ equals_____ multiplied by_____ multiplied by _____multiplied by _____multiplied by _____

$3^7 = 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

_____ to the power of _____ equals _____ multiplied by _____ multiplied by _____ multiplied by _____multiplied by _____ multiplied by _____ multiplied by _____

$3^7 : 3^5 =$

can be written as

$3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 : (3 \cdot 3 \cdot 3 \cdot 3 \cdot 3) =$

you can group factors

$(3 \cdot 3) \cdot (3 \cdot 3 \cdot 3 \cdot 3 \cdot 3) : (3 \cdot 3 \cdot 3 \cdot 3 \cdot 3) =$

$(3 \cdot 3) \cdot 1 =$

$3 \cdot 3 =$

$3 \cdot 3 = 3^2$

$3^7 : 3^5 = 3^{7 \ldots 5}$

Another example can be _____
(make up an example with different base and different exponent and check it)

So the general rule is

$$a^x : a^y = a^{x \ldots y}$$

that can be read as:

In a **division of powers** with the same _____

you leave the same _____ and _____the exponents

Groups of experts tasks

C

$3^2 = 3 \cdot 3$

_____ to the power of _____ equals _____ multiplied by _____

$(3 \cdot 3)^5 = (3 \cdot 3) \cdot (3 \cdot 3) \cdot (3 \cdot 3) \cdot (3 \cdot 3) \cdot (3 \cdot 3)$

_____ multiplied by _____ to the power of _____ equals_____ multiplied by_____ multiplied by _____multiplied by _____multiplied by _____ multiplied by_____ multiplied by _____multiplied by _____multiplied by _____ multiplied by_____

It can be written without the brackets as follows

$3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

Written as a power this is

$3^{\cdots}$

Finally it can be expressed with exponents

$(3^2)^5 = 3^{2 \ldots 5}$

Another example can be _____

(make up an example with different base and different exponent and check it)

So the general rule is

$$(a^x)^y = a^{x \ldots y}$$

that can be read as:

In a **power of another power**

you leave the same _____ and _____the exponents

Groups of experts tasks

D

$(5\cdot3)^2 = (5\cdot3)\cdot(5\cdot3) = 5\cdot3\cdot5\cdot3$

_____ to the power of _____ equals _____ multiplied by _____ multiplied by _____ multiplied by _____ multiplied by _____

$5\cdot3\cdot5\cdot3 = 5\cdot5\cdot3\cdot3$

_____ multiplied by _____ multiplied by _____ multiplied by _____ multiplied by _____ can be reorganised as _____ multiplied by _____ multiplied by _____ multiplied by _____ multiplied by _____

$5\cdot5\cdot3\cdot3$

It can be written by using brackets as follows

$(5\cdot5)\cdot(3\cdot3)$

And expressed with exponents

$$(5\cdot3)^2 = 5^2 \cdot 3^2$$

Another example can be _____

(make up an example with different base and different exponent and check it)

So the general rule is

$$(a \cdot b)^x = a^{\cdots} \cdot b^{\cdots}$$

that can be read as:

In a **power of a product** you **raise each factor** to the same _____ and then you _____the **powers**