Activator

Evaluate the following...
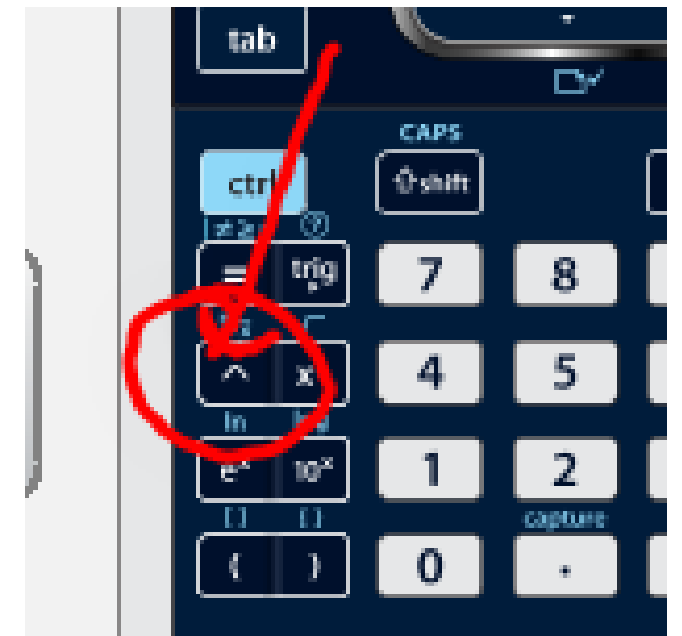
$$y = 5^3$$

y = 125

y = (5)(5)(5)

y = 125

Press the exponent button

Today's Objective

Students will be able to multiply, divide, and expand with exponents.

Announcements

Definition

It is the number of times that you multiply.

Facts

* It means times itself.
* Called the little number.

Exponent

Example(s)

Sometimes on a number

$$3^4 = (3)(3)(3)(3)$$

Sometimes on a variable

$$3x^4 = 3(x)(x)(x)(x)$$

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Sometimes on a (   )....

$$(3x)^4 = (3x)(3x)(3x)(3x)$$

Write in expanded notation, NO exponents.
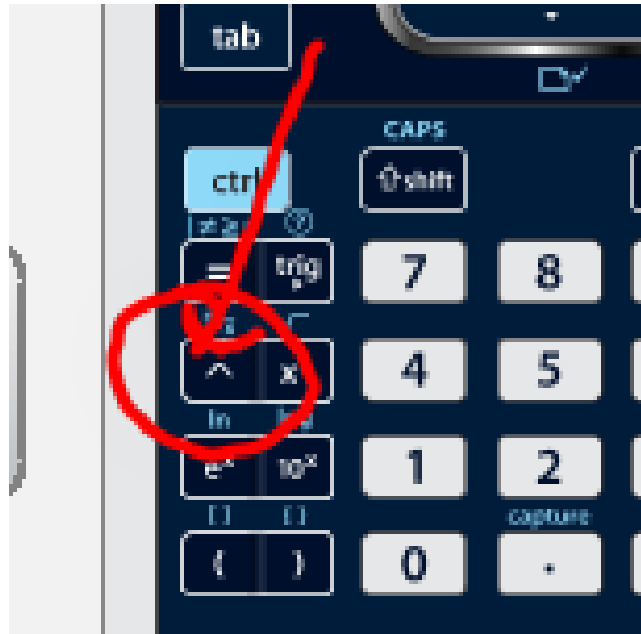
$$4^3(4^2)$$

$$x^3(x^2)$$

$$(4)(4)(4)(4)(4)$$

$$(x)(x)(x)(x)(x)$$

$$4^5 \ or \ 1,024$$

$$x^5$$

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Write in expanded notation. Then, simplify.

$(3^2)^4$

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$(y^2)^4$

$(3^2)(3^2)(3^2)(3^2)$

$(y^2)(y^2)(y^2)(y^2)$

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

$(y \cdot y)(y \cdot y)(y \cdot y)(y \cdot y)$

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

$y \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y$

3^8 or $6{,}561$

y^8

Today's New Vocab (4 of 4)

Write in expanded notation. Then, simplify.

$$\frac{2^7 x^4}{2^3 x} \implies \frac{(2)(2)(2)(2)(2)(2)(2)xxxx}{(2)(2)(2)x}$$

$$\implies (2)(2)(2)(2)xxx \implies 2^4 x^3$$

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Group Work Questions

Directions: All groups, please do all of the questions. Use your notes to help you. [Ask 2 people before you ask me.]

Stop at 9:26 or 10:56 or 12:50 or 2:15

Do a few questions on the study guide if you finish early.

*One person from each group will present one question.

Work Period

What is the product of 10^6 and 10^2 ? **Expand.**

$(10)(10)(10)(10)(10)(10) \cdot (10)(10)$

$100,000,000$ or 10^8

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Scientific Notation = writing big/small numbers

Exit Ticket

What is the product of $(3x)^2$ and $6x^3$?

Write this in _expanded notation_ first.

$(3x)(3x) \cdot (6)(x)(x)(x)$

$(3)(3)(6)(x)(x)(x)(x)(x)$

$54x^5$