

Exploring Laws of Exponents

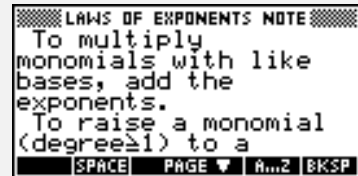
For the Teacher

Objectives:

Using the **LAWS OF EXPONENTS** applet, the student will apply the laws of exponents to multiply and divide monomials and to raise a monomial to a power.

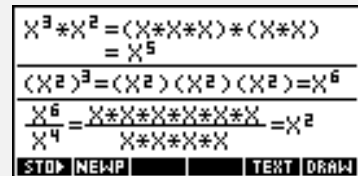
Functionality:

When the student presses **START**, the **LAWS OF EXPONENTS NOTE** will be displayed.



LAWS OF EXPONENTS NOTE
To multiply
monomials with like
bases, add the
exponents.
To raise a monomial
(degree ≥ 1) to a
power, multiply the
exponents.
[SPACE] [PAGE] [BKSP]

After reading the note, the student should look at the **SKETCH** for further explanation.



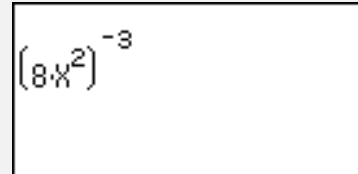
$x^3 * x^2 = (x * x * x) * (x * x) = x^5$
 $(x^2)^3 = (x^2)(x^2)(x^2) = x^6$
 $\frac{x^6}{x^4} = \frac{x * x * x * x * x * x}{x * x * x * x} = x^2$
[STD] [NEWP] [TEXT] [DRAW]

VIEWS allows the student to select a new problem, enter the answer, see the steps involved in solving the problem, or to view the problem again.



DEC [New Problem]
Guess
Show Steps
See Problem
Start
[CANCEL] [OK]

New Problem will display a problem for the student to solve. The problems will be randomly generated to be multiplication, division, or an exponent raised to an exponent.



$(8x^2)^{-3}$

Guess prompts the student to enter the coefficient and the exponent of the answer.



512XX*E
EXPONENT = -6
ENTER EXPONENT OF EXPRESSION
[EDIT] [CANCEL] [OK]

Information concerning the answer will be displayed in a message box. **EXCELLENT!** appears when the student is correct. If the coefficient or exponent is correct, the message box will display the correct information.



512XX*E
EXPONENT IS CORRECT
ENTER EXPONENT OF EXPRESSION
[OK]

Show Steps will show the steps involved in solving this problem. Press any key to see the next step.

$$\begin{aligned}(8X^2)^{-3} \\ &= 8^{-3}X^{(2*-3)} \\ &= X^{-6}/512 \\ &= 1/(512X^6)\end{aligned}$$

See Problem will display the problem again if needed.

$$(8X^2)^{-3}$$

Ideas can be applied to:
Algebra I, Algebra II

Programs associated with this applet:
.LE.NP, .LE.G, .LE.S, .LE.SEE, .LE.SV