

**Math Virtual Learning**

# **Algebra 2/Honors Algebra 2**

**April 16, 2020**



Lesson: April 16, 2020

**Objective/Learning Target:**

Students will be able to simplify expressions using the power to power rule of exponents.

## Let's Get Started:

Get out a sheet of paper and simplify the expression

$$\frac{3a^2b^4c^{-6}}{12a^{-3}b^{10}c^{-6}}$$

[Click Here](#) to check your answer and make sure that you got it right!

## Watch Video:

On the same sheet of paper, watch the video for [Power to Power Rule](#) and take notes.

## Power to Power Rule Practice:

1. You will need a sheet of paper and go to the website [Power Rule](#)
2. Complete as many problems as you would like; here is an example.

question

Simplify. Express your answer using a single exponent.

$$(m^7)^3$$

key idea

To raise a power to a power, multiply the exponents.

solution

The expression  $m^7$  is raised to the power of 3. Multiply the exponents.

$$(m^7)^3 = m^{(7 \cdot 3)}$$

*Simplify  $(m^7)^3$ , remembering to multiply the exponents*

$$= m^{21}$$

*Multiply*

# Power to Power Rule Practice Continued:

On the same sheet of paper, simplify the following practice problems.

**SIMPLIFY EACH EXPRESSION:**

1)  $(x^2)^3 =$

2)  $(a^7)^5 =$

3)  $(y^{13})^4 =$

4)  $(4y^3)^2 =$

5)  $(8c^5)^2 =$

6)  $(-3h^9)^3$

7)  $(y^4d^6)^8 =$

8)  $(-15h^9k^7)^3 =$

9)  $(k^9)^5(k^3)^2 =$

10)  $(3y^6)^2(x^5y^2z) =$

11)  $(4h^3)^2(-2g^3h)^3 =$

12)  $(14a^4b^6)^2(a^6c^3)^7 =$

## Answer Key:

Once you have completed the problems, check your answers here.

1)  $x^6$

2)  $a^{35}$

3)  $y^{52}$

4)  $16y^6$

5)  $64c^{10}$

6)  $-27h^{27}$

7)  $y^{32}d^{48}$

8)  $-3375h^{27}k^{21}$

9)  $k^{51}$

10)  $9x^5y^{14}z$

11)  $-128g^9h^9$

12)  $196a^{50}b^{12}c^{21}$

## **Additional Practice:**

Click on the links below to get additional practice and to check your understanding!

[Power to Power Rule Teacher Notes](#)

[Power to Power Rule Practice](#) Worksheet

Power to Power Rule Practice [Answer Key](#)