

Algebraic Expressions

1. $-3(4x - 2) + 5(6x - 3)$
 $-12x + 6 + 30x - 15$
 $18x - 9$

2. $12x + 7y - 18x + 7 - 9 - 4y$

Aug 16-2:50 PM

Parts of an Expression

3. Identify each term, factor, coefficient, variable, and constant of $-5x^2 - 2x + 7y + 9$

Term(s) $-5x^2, -2x, 7y, 9$

Factor(s) $1, 2, 3, 5, 7, 9, x, x, y$

Coefficient(s) $-5, -2, 7$

Variable(s) x, y

Constant(s) 9

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Translating & Creating Algebraic Expressions

(page 6 of Notes)

7. Twice a number $2x$

8. 8 more than a third of a number $8 + \frac{1}{3}x$

9. 6 less than twice k $2k - 6$

10. Five divided by the sum of a and b. $\frac{5}{a+b}$

11. The quotient of k decreased by 4 and 9. $\frac{k-4}{9}$

12. 2 minus the quantity 3 more than p. $2 - (3+p)$

13. Half of the quantity 1 less than w. $\frac{1}{2}(w-1)$

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Creating Algebraic Expressions

The poster below shows the costs at a fall carnival.

Fall Carnival

Admission \$10

Each ride \$2

$r = \text{rides}$
 $2r + 10$

Which of the following expressions represents the total cost, in dollars, of 1 admission and r rides, for any number of rides?

A. $10 + 2r$


B. $10(r + 2) = 10r + 20$

C. $10 - 2r$

D. $10 + r + 2$

Aug 27-4:49 PM

INB

8/30/18 

Module 2

Day 4 & 5 - Properties of Exponents

Aug 28-1:14 AM

8/28/18

Essential Question

- How do I simplify and evaluate numeric expressions involving integer exponents?

Aug 20-2:31 PM

Standards: 8/28/18

Use properties of integer exponents to find equivalent numerical expressions. (MGSE8.EE.1)

Aug 27-4:24 PM

Exploring Multiplying Powers

Original	Expanded Form	Simplified Form	Rule
$x^3 \cdot x^2$	$x \cdot x \cdot x \cdot x \cdot x$	x^5	Multiplying Powers
$x^2 \cdot x^4$	$x \cdot x \cdot x \cdot x \cdot x \cdot x$	x^6	$x^m \cdot x^n = x^{m+n}$
$5x^4 \cdot 2x^3$	$5 \cdot x \cdot x \cdot x \cdot x \cdot 2 \cdot x \cdot x \cdot x$	$10x^7$	$2 \cdot 2^2 = 2^{1+2} = 2^3$
$(x^2)^3$	$(x \cdot x)(x \cdot x)(x \cdot x)$	x^6	Power to a Power
$(x^3)^2$	$(x \cdot x \cdot x)(x \cdot x \cdot x)$	x^6	$(x^m)^n = x^{m \cdot n}$
$(x^2 y^3)^2$	$(x \cdot x)(y \cdot y)(x \cdot x)(y \cdot y)$	$x^4 y^4$	
$(x^2 y^3)^3$	$(x \cdot x)(y \cdot y)(x \cdot x)(y \cdot y)(x \cdot x)(y \cdot y)$	$x^6 y^6$	

Original	Expanded Form	Simplified Form	Rule
$(2x^3)^2$	$(2 \cdot 2 \cdot 2)(x \cdot x)(x \cdot x)(x \cdot x)$	$16x^6$	Product to a Power
$(2x^3)^3$	$(2 \cdot 2 \cdot 2)(x \cdot x \cdot x)(x \cdot x \cdot x)(x \cdot x \cdot x)$	$8x^9$	$(xy)^m = x^m y^m$
$(10x^2)^3$	$(10 \cdot 10 \cdot 10)(x \cdot x)(x \cdot x)(x \cdot x)$	$1000x^6$	
$(5x^2 y^3)^2$	$(5 \cdot 5)(x \cdot x)(y \cdot y)(y \cdot y)(y \cdot y)$	$25x^4 y^6$	
$(7x^2 y^3)^2$	$(7 \cdot 7)(x \cdot x)(y \cdot y)(y \cdot y)(y \cdot y)$	$49x^4 y^6$	

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Exploring Dividing Powers

Original	Expanded Form	Simplified Form	Rule
$\frac{x^3}{x^1}$	$\frac{x \cdot x \cdot x}{x}$	x^2	Dividing Powers
$\frac{x^4}{x^2}$	$\frac{x \cdot x \cdot x \cdot x}{x \cdot x}$	x^2	$\frac{x^m}{x^n} = x^{m-n}$
$\frac{2x^4}{4x}$	$\frac{2 \cdot x \cdot x \cdot x \cdot x}{4 \cdot x}$	$\frac{1}{2}x^3$	
$\frac{6x^5}{2x^2}$	$\frac{6 \cdot x \cdot x \cdot x \cdot x \cdot x}{2 \cdot x \cdot x}$	$3x^3$	

$\frac{2}{4} = \frac{1}{2} \cdot \frac{x^4}{x} = \frac{1}{2} \cdot \frac{x \cdot x \cdot x \cdot x}{x} = \frac{1}{2} x^3$

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Original	Expanded Form	Simplified Form	Rule
$(\frac{2}{3})^4$	$\frac{2 \cdot 2 \cdot 2 \cdot 2}{3 \cdot 3 \cdot 3 \cdot 3}$	$\frac{16}{81}$	Raising a Quotient to a Power
$(\frac{x}{y})^3$	$\frac{x \cdot x \cdot x}{y \cdot y \cdot y}$	$\frac{x^3}{y^3}$	$(\frac{x}{y})^m = \frac{x^m}{y^m}$
$(\frac{2x}{y^2})^2$	$\frac{(2 \cdot x)(2 \cdot x)}{(y \cdot y)(y \cdot y)}$	$\frac{4x^2}{y^4}$	
$(\frac{-2x}{y^2})^3$	$\frac{(-2 \cdot x)(-2 \cdot x)(-2 \cdot x)}{(y \cdot y)(y \cdot y)(y \cdot y)}$	$\frac{-8x^3}{y^6}$	

Original	Expanded Form	Simplified Form	Rule
$\frac{x^3}{x^3}$	$\frac{x \cdot x \cdot x}{x \cdot x \cdot x} = 1$	1	Zero Power
$\frac{2^4}{2^4}$		1	$\frac{x^m}{x^m} = x^{m-m}$
$\frac{x^2}{x^2}$		1	$x^0 = 1$
$\frac{z^5}{z^5}$		1	

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Negative Exponent $a^{-n} = \frac{1}{a^n}$

For any nonzero number "a" raised to a negative exponent, place the power in the denominator to rewrite the power with a positive exponent

WHY?? Let's Explore $\frac{b^2}{b^5}$ $\frac{bb}{bbbbb} = \frac{1}{bbb} = \frac{1}{b^3} = b^{-3}$

$2^{-3} = \frac{1}{2^3} = \frac{1}{2 \cdot 2 \cdot 2} = \frac{1}{8}$

$(-3)^{-3} = \frac{1}{(-3) \cdot (-3) \cdot (-3)} = \frac{1}{-27}$

Aug 28-1:13 AM

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Aug 29-9:17 AM

Post-It **8/30/18**

Check! **Simplify the following:**

1. $y^3 \times y^6$
2. $(x^3)^2$
3. $\frac{b^8}{b^3}$

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Day 4 & 5 - Properties of Exponents

1. Directions: Simplify each expression.

a. $x^3 \times x^2$	b. $y^3 \times y^2$	c. $n^4 \times n^2$	d. $x^2 y^3 \times x^3 y^2$
e. $a^3 b^3 \times ab^4$	f. $7y^3 z^4 \times 2yz^2$	g. $3mn^3 \times 8m^3 n^7$	h. $9b^3 \times 2a^2 \times a^3 b^4$

2. Direction: Simplify each expression.

a. $(x^3)^2$	b. $(n^4)^3$	c. $-(m^2)^4$	d. $(3x^2 y)^4$
e. $(-5y^3 z^2)^3$	f. $(-4mn^2)^2$	g. $(2ab^3)^4$	h. $(-2x^3 y)^2$

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3. Directions: Simplify each expression:

a. $\frac{x^4}{x^3}$	b. $\frac{y^4}{y^2}$	c. $a^3 \div a^2$	d. $\frac{-h^4}{h^2}$
e. $\frac{-12x^2}{3x^2}$	f. $\frac{45a^3 b^2}{-5a^2 b}$	g. $\frac{24y^6}{4y^4}$	h. $\frac{10m^3 n^3}{2m^2}$

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The X-Game!!!

Exponent Properties - Practice 8-24-16.ks-ipa

Aug 23-5:00 PM

1st Block				
Ibet X X X X	Christopher X X X X	Kobe X X X X	Tyreek X X X X	Cesar X X X X
Daniel X X X X	Jonathan X X X X	Tavarius x x x x	Bren Den x x x x	Jacob X X X X
Davia X X X X	Tomae X X X X	Dakira X X X X	Nino X X X X	Cameron X X X X
Deanthony X X X X	Gerald X X X X	Xavier X X X X	Nikita X X X X	Brenda X X X X
Naveah X X X X	El'asia X X X X	Ariel X X X X	Jared X X X X	Daniyah X X X X
Charles X X X X				

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Aug 29-8:03 AM

Attachments

Exponent Properties - Practice 8-24-16.ks-ipa