Exponents Day 3

Agenda

Warm-Up

HW Check

Notes

Match Game

HW (1 page)

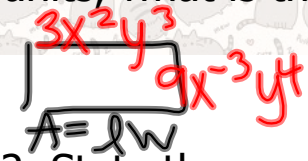
Reminders

Bathroom passes due now!!

Quiz/HW 4.6 due tomorrow

Warm-Up Thursday

1. Katie is buying soil for a rectangular garden. If the length of the garden is $3x^2y^3$ units and the width of the garden is $9x^{-3}y^4$ units, what is the area of the garden?



$(3x^2y^3)(9x^{-3}y^4)$

$27x^{-1}y^7 = \frac{27y^7}{x}$

2. State the process used to answer the following question:

Divide area by width

The width of a rectangular room is 20 feet. If the area is 200 ft², what is the length of the room? $A=lw$

$\frac{200}{20} = \frac{20l}{20}$

HW Check!

1. n^8
2. x^3
3. $(-3)^5$
4. 1
5. x^{10}
6. 6561 $= 3^8$
7. a^2
8. $p^{28}q^{14}$
9. 4
10. 3
11. -3
12. a^2b^4
13. F
14. J

Algebra I – Unit 7: Topic 1 – Multiplication Properties of Exponents

Practice – Multiplication Properties of Exponents **pp 460-466**

Name _____ Date _____ Period _____

Simplify the expressions below:

1. $n^6 \cdot n^2$ 2. $x^2 \cdot x^{-3} \cdot x^4$ 3. $(-3)^3 \bullet (-3)^2$ 4. $a^5 \cdot a^0 \cdot a^{-5}$

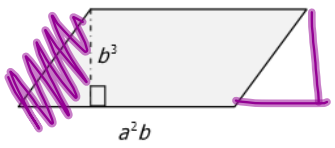
Simplify the expressions below:

5. $(x^2)^5$ 6. $(3^{-2})^{-4}$ 7. $(a^{-3})^4 \cdot (a^7)^2$ 8. $(p^4q^2)^7$

Find the missing exponent in each expression:

9. $a^{\square} \cdot a^6 = a^{10}$ 10. $(a^2b^{\square})^4 = a^8b^{12}$ 11. $(a^3b^6)^{\square} = \frac{1}{a^9b^{18}}$

12. Write an expression for the area of the figure below:



13. Which expression best represents $(3a^2b^3c)(-3ab)(-2a^3bc^3)$?

F $18a^6b^5c^4$

G $-18a^6b^3c^3$

H $18a^6b^9c^4$

J $-8a^6b^5c^4$

14. Which expression describes the area in square units of a rectangle that has a length of $10x^3y^4$ units and a width of $5x^2y$ units?

F $2x^5y^4$

G $15x^5y^5$

H $50x^5y^4$

J $50x^5y^5$

Quotient of Powers

Divide ÷

$$\frac{2^6}{2^3} = \frac{2\cdot2\cdot2\cdot2\cdot2\cdot2}{2\cdot2\cdot2} = 2^{3=6-3}$$

$\frac{2}{2}$ *same base

Treat fraction bar (divides) like a giant minus.

SUBTRACT exponents

$$\frac{a^4}{a^{-2}} = \frac{a^4 a^2}{a^{4-(-2)}} = a^6$$

Quotient of Powers #12-14

Simplify completely. Leave no negative exponents!

12. $\frac{x^9}{x^3} = x^{9-3} = \boxed{x^6}$

13. $\frac{a^5}{a^{10}} = a^{5-10} = a^{-5} = \boxed{\frac{1}{a^5}}$

14. $\left(\frac{14a^0b^7c^{10}}{7a^3b^{-2}c^1}\right) = \frac{14a^{0-3}b^{7-(-2)}c^{10-1}}{7}$

$= \frac{14a^{-3}b^9c^9}{7} \div 7 = \frac{14b^9c^9}{7a^3} \div 7$

$= \boxed{\frac{2b^9c^9}{a^3}}$

Exponent Card Match

Match the problem with the correct answer (on a shaded card). Show your work OR list the exponent property used.

~~Property bank:~~ Zero Power, Product Property, Quotient Property, Power to a Power, distributive

=1 $(x^2)^2$ $(4x)^2$

One side due by end of period

~~Example (pink cards)~~

Problem	Process or Property	Answer
$x^6 x^7$	Product Property x^{6+7}	x^{13}

Quiz Bonus!! +5 points on tomorrow's quiz

Simplify completely. Leave no negative exponents!

Tweet your answers to @mskmath or email them to sara.korotkow@risd.org BEFORE 9AM Friday!

1. $\left(\frac{345x^{23}y^{78}z^{945}}{2560x^{10}y^{156}z^{90}}\right)^0$

2. $(5x^7yz^4)(-4x^3y^2z)$

3. $\frac{b^6c^5}{b^{14}c^2}$

Tonight's HW:
1,2,3,5,7,8,9

Quiz & completed HW 4.6 Due Friday

Quiz & completed HW 4.6 Due Friday

Algebra I – Unit 7: Topic 1 – Division Properties of Exponents

Practice –Division Properties of Exponents **pp 467-470**

Name _____ Date _____ Period _____

Simplify the expressions below:

1. $\frac{-3x^7}{6x^3}$

2. $\frac{15x^{-3}}{x}$

3. $\frac{8x^{10}y^7}{2x^6y^6}$

4. $\left(\frac{x^{-5}}{x^{-2}}\right)^5$

5. $\frac{x^9y}{(x^2y^9)^2}$

6. $\left(\frac{3b^2c}{6ab^3}\right)^{-2}$

7. A rectangular parking lot has an area of $10a^3b^6$ square yards. If the length of the park is $2a^3$, what is the width of the park?

8. Which expression best represents the simplification of $(3m^{-2}n^4)(-4m^6n^{-7})$?

F $-\frac{12m^4}{n^3}$

G $-\frac{1}{12m^4n^3}$

H $-\frac{m^4n^3}{12}$

J $-\frac{12n^3}{m^4}$

9. Which expression is equivalent to $(-5abc^4)(-3a^3c^2)(-4a^2b^4c^3)$?

A. $-12a^6b^5c^9$

B. $-12a^6b^4c^{24}$

C. $-60a^6b^5c^9$

D. $-60a^9b^9c^9$

10. The volume of a rectangular prism is $125x^3$ cubic units, and the area of its base is $25x^2y^2$ square units. What is the height of the prism in units if $x > 0$ and $y > 0$?