PRE-ALGEBRA

Week of April 27

- Zero and Negative Properties of Exponents
- If you had a lot of trouble with mult/div go back and get comfortable with those first because you need them for these two rules to make sense.

Instructions

- Week of 4/27: On the practice sheet, do 2-10 evens, 22-26 all. Answers are on bottom pages like normal.
- Or if you're online you could do the BIM assignment instead. No need to do both unless the practice is needed/would help.

Properties of Exponents
Zero Exponent

- When a base has an exponent of zero the entire power becomes one.

  Ex) $5^0 = 1$ $x^0 = 1$

Exception: Zero to any power including zero is 0.

Proof of Zero Property

$3^3 = 3 * 3 * 3$ right?

So $3^3 \div 3^3 = \frac{3 * 3 * 3}{3 * 3 * 3} = 27/27 = 1$

This could also be written as 3^{3-3} because of the division rule we just learned. Which would give us 3^0 so we can see that a base raised to zero is 1.

Properties of Exponents
Negatives

- Now we have the multiplication, division, and zero rules for exponents. There are two rules left though you only learn one more this year. That rule is the negative rule. It is possible to get a negative exponent.
  - Ex) $5^4 \div 5^6$ would be 5^{-2} because 4 - 6 is (-2).

Properties of Exponents
Negatives

- However, we do not allow exponents to be negative in a final answer for real life work with the **exception being numbers in scientific notation.** This means you must have **all positive exponents** when done with a problem. This requires us to invoke the math rule we have in the past on a few occasions of. **changing the appearance of a number without actually changing the number.** Like reducing/enlarging a fraction.

Properties of Exponents
Negatives

- So how do we turn exponents that are negative into positive exponents without changing the number? We use the negative property of exponents.

Properties of Exponents
Negatives

- A power with a negative exponent equals 1 divided by that power with the opposite exponent.

- Ex) 4^{-3} is equal to $\frac{1}{4^3}$

Properties of Exponents
Negatives

- This also works if the number on bottom of a fraction has a negative exponent.

- Ex) $\frac{1}{5^{-6}} = 5^6$

Proof of Negative Property

- Lets start with 4^{-3}. Lets say the original problem was $4^2 \div 4^5$.
- $4^2 \div 4^5 = 4^{(2-5)} = 4^{-3}$. By the rules of exponential division.
- Expanded out this looks like $\frac{4 * 4}{4 * 4 * 4 * 4 * 4}$
- You can use several methods to get $\frac{1}{4^3}$

Proof of Negative Property

- First: You could just multiply and then divide the numbers out.
- $\frac{4 * 4}{4 * 4 * 4 * 4 * 4} = \frac{16}{1024} = \frac{1}{64} = \frac{1}{4^3}$

  After Reducing
- So you get $4^2 \div 4^5 = 4^{-3} = \frac{1}{4^3}$

Second Proof of Negative Property

- Using the prior example,
- You can cancel two 4s on top with two of the 4s on bottom. Which would leave you with 3 on bottom.

- $\frac{4 * 4}{4 * 4 * 4 * 4 * 4}$
- $\frac{1}{4 * 4 * 4}$
- Which is also $\frac{1}{4^3}$

Negative Property In Action

- Lets say you start with
- $x^4 * x^{-8}$
- By multiplication property of exponents, your answer would have a negative exponent.
- x^{-4}
- Now use the negative property to get 1 over x^4 as the final answer.
- $\frac{1}{x^4}$

Negative Property In Action

- Lets say you start with
- $\frac{x^{10}y^5}{x^7y^{12}}$
- By using the division property you would get
- x^3y^{-7}
- The negative property only effects negative exponents. So x stays where it is but y changes since it has a negative exponent.
- $\frac{x^3}{y^7}$

 Name_____

Properties of Exponents

Date_____ Period____

Simplify. Your answer should contain only positive exponents.

1) $2m^2 \cdot 2m^3$

2) $m^4 \cdot 2m^{-3}$

3) $4r^{-3} \cdot 2r^2$

4) $4n^4 \cdot 2n^{-3}$

5) $2k^4 \cdot 4k$

6) $2x^3y^{-3} \cdot 2x^{-1}y^3$

7) $2y^2 \cdot 3x$

8) $4v^3 \cdot vu^2$

9) $4a^3b^2 \cdot 3a^{-4}b^{-3}$

10) $x^2y^{-4} \cdot x^3y^2$

11) $(x^2)^0$

12) $(2x^2)^{-4}$

13) $(4r^0)^4$

14) $(4a^3)^2$

15) $(3k^4)^4$

16) $(4xy)^{-1}$

17) $(2b^4)^{-1}$

18) $(x^2y^{-1})^2$

19) $(2x^4y^{-3})^{-1}$

20) $(3m)^{-2}$

21) $\frac{r^2}{2r^3}$

22) $\frac{x^{-1}}{4x^4}$

23) $\frac{3n^4}{3n^3}$

24) $\frac{m^4}{2m^4}$

25) $\frac{3m^{-4}}{m^3}$

26) $\frac{2x^4y^{-4}z^{-3}}{3x^2y^{-3}z^4}$

27) $\frac{4x^0y^{-2}z^3}{4x}$

28) $\frac{2h^3j^{-3}k^4}{3jk}$

29) $\frac{4m^4n^3p^3}{3m^2n^2p^4}$

30) $\frac{3x^3y^{-1}z^{-1}}{x^{-4}y^0z^0}$

 Name_____

Properties of Exponents

Date_____ Period____

Simplify. Your answer should contain only positive exponents.

1) $2m^2 \cdot 2m^3$

$4m^5$

2) $m^4 \cdot 2m^{-3}$

$2m$

3) $4r^{-3} \cdot 2r^2$

$\frac{8}{r}$

4) $4n^4 \cdot 2n^{-3}$

$8n$

5) $2k^4 \cdot 4k$

$8k^5$

6) $2x^3y^{-3} \cdot 2x^{-1}y^3$

$4x^2$

7) $2y^2 \cdot 3x$

$6y^2x$

8) $4v^3 \cdot vu^2$

$4v^4u^2$

9) $4a^3b^2 \cdot 3a^{-4}b^{-3}$

$\frac{12}{ab}$

10) $x^2y^{-4} \cdot x^3y^2$

$\frac{x^5}{y^2}$

11) $(x^2)^0$

1

12) $(2x^2)^{-4}$

$\frac{1}{16x^8}$

13) $(4r^0)^4$

256

14) $(4a^3)^2$

$16a^6$

15) $(3k^4)^4$

$81k^{16}$

16) $(4xy)^{-1}$

$\frac{1}{4xy}$

17) $(2b^4)^{-1}$

$\frac{1}{2b^4}$

18) $(x^2y^{-1})^2$

$\frac{x^4}{y^2}$

19) $(2x^4y^{-3})^{-1}$

$\frac{y^3}{2x^4}$

20) $(3m)^{-2}$

$\frac{1}{9m^2}$

21) $\frac{r^2}{2r^3}$

$\frac{1}{2r}$

22) $\frac{x^{-1}}{4x^4}$

$\frac{1}{4x^5}$

23) $\frac{3n^4}{3n^3}$

n

24) $\frac{m^4}{2m^4}$

$\frac{1}{2}$

25) $\frac{3m^{-4}}{m^3}$

$\frac{3}{m^7}$

26) $\frac{2x^4y^{-4}z^{-3}}{3x^2y^{-3}z^4}$

$\frac{2x^2}{3yz^7}$

27) $\frac{4x^0y^{-2}z^3}{4x}$

$\frac{z^3}{y^2x}$

28) $\frac{2h^3j^{-3}k^4}{3jk}$

$\frac{2h^3k^3}{3j^4}$

29) $\frac{4m^4n^3p^3}{3m^2n^2p^4}$

$\frac{4m^2n}{3p}$

30) $\frac{3x^3y^{-1}z^{-1}}{x^{-4}y^0z^0}$

$\frac{3x^7}{yz}$

Student-Choice Menu Boards Middle ELA

By Alyssa Tyra

Name:_____ Date: _____

Student Choice Menu Board
Middle School ELA, Week #4

Select 6 of the 9 tasks here. Use a separate sheet of paper to record your answers. Be sure to include the number of activity you choose. Store videos on your device to email to your teacher.

#1) Write about what life is like during this time in the world. Include information about the parts of your life that have been cancelled or disrupted.	#2) Watch your favorite movie and write a 75-100 word summary. Start with one of the main characters, and elaborate on what that character wanted, what he/she faced as conflict, how that conflict was resolved, and what the outcome was.	#3) After finishing a movie, TV series, or video game, write an alternate ending. Would it be funnier, sadder, or something in between?
#4) Choose a set of topics below. Make a list that supports which one you like better. Be sure to also include counterclaims. *Instagram or Snapchat* *Online or Traditional School*	#5) Choose a book. Read for 30 minutes. Find at least three words you don't know. Use context clues to determine their meaning.	#6) Plan your dream vacation. Where would you go if you could go anywhere in the world? What would you do there? Tell me in a 5-7 sentence paragraph.
#7) Write a paragraph explaining how to do something that you are good at. It could be a sport, video game, art project, cooking, photography, hunting, etc. BE SPECIFIC	#8) Read the following quote and write a short reaction to it. What does it mean? What does it make you think of? Do you agree or disagree? *"The greatest glory in living lies not in never falling, but in rising every time we fall." – Nelson Mandela*	#9) Record a video of yourself explaining one of the following punctuation marks to a younger student. *Apostrophe* *Semicolon* *Quotation Marks*

Ledford

Week

4

Reconstruction Quiz 2

1. What was the 13th Amendment?
2. What was the 14th Amendment?
3. What was the 15th Amendment?
4. What were the 3 parts of Johnson's plan?
5. What were the 2 goals of Congress' hard line plan for Reconstruction?
6. The South was divided into ___ military districts.
7. In how many states did African American voters outnumber whites?
8. What was the outcome of African Americans being able to vote?
9. Who were the "scalawags"?
10. Who were the"Freedmen"?
11. Who were the "carpetbaggers"?
12. When President Johnson disagreed with the Radical Republicans, what did they try to do to him?
13. Who was elected president after Johnson?
14. What was the name of the secret society that evoked terror on many African Americans?

Reconstruction Quiz 3

1. During Grant's administration _____ started retaking control of the South.
2. Who decided the election of 1876?
3. What attempted crime was happening during election night 1876?
4. What is a poll tax?
5. What was a literacy test?
6. What was the purpose of the grandfather clause?
7. Laws requiring segregation were called _____ _____ _____
8. Why was Homer Plessey arrested?
9. What did the Supreme Court say about laws requiring segregation?
10. What was the name given to a poor black or white farmer who rented land and equipment from an owner?
11. New laws, voting rules, sharecropping, prisoner lease programs, all were meant to return many African Americans to state of existence that closely resembled_____

Reconstruction

1. Define Radical Reconstruction
2. Why did Lincoln support the 10% plan?
3. What is the 13th Amendment?
4. What is the 14th Amendment?
5. What is the 15th Amendment?
6. What is the exception to the ban on slavery?
7. What are Jim Crow laws?
8. What was Lincoln's reconstruction goal?
9. How did the Grandfather Clause restrict voting rights of Freedmen but not whites?
10. Why was the policy of rebuilding the South called Radical Reconstruction?
11. What was a major point of conflict during Reconstruction?
12. What played a major role in denying African Americans their civil rights?
13. What was the first duty of the Freedman's Bureau?
14. Why was the Ku Klux Klan created?