Week of April 13-17, 2020
Mrs. Epperson

I sure miss seeing each and everyone of you. If you are able, please connect with us through our google classroom. We have weekly calls on Thursdays if you are able to join us. They are NOT required, but it's nice to catch up and see your faces. The times we meet on Thursdays are 6th grade: 12:45-1:15, 7th grade:1:15-1:45, and 8th grade: 1:45-2:15, you can find the link to connect with us in your student email (same email and password you use to log into chromebooks; remember, the ending of your email address is @oakland5.org)

You may use your math folder to help you. You have to complete 1 worksheet, but may complete all 3. I am available at nichole.epperson@oakland5.org or 708-517-0534 for any questions. You may call or text.

All worksheets have the appropriate grade level/subject at the top.

Class	Choice 1	Choice 2	Choice 3
8th grade Algebra	1-6	1-7	1-9

8 Algebra
Epperson Name:

Choice1

PRACTICE TUTORIAL

1-6 Additional Practice

Week of 4/13-4/17

Scan for Multimedia

Leveled Practice **In 1–4, use the properties of exponents to write an equivalent expression for each given expression.**

1. $5^3 \cdot 5^4 = 5^{3 \quad 4}$

$=$

2. $\frac{4^9}{4^3} = 4^{9 \quad 3}$

$=$

3. $(7^2)^6 = 7^{2 \quad 6}$

$=$

4. $2^4 \cdot 6^4 = (\quad \cdot \quad)^4$

$=$

5. Simplify the expression $(x^{12})^3$.

6. Simplify the expression $(-12c^5)(3c^4)$.

7. Use the properties of exponents to simplify the expression $\frac{5^{22}}{5^{13}}$.

8. Use the properties of exponents to write an equivalent expression for $(3 \cdot 6)^2$.

9. **Make Sense and Persevere** Compare the two expressions.

   a. Is the expression $a^{12} \cdot a^4$ equivalent to $a^8 \cdot a^8$? Explain.

   b. Does $a^{12} \cdot a^4 = a^8 \cdot a^8$ for all values of a? Explain.

10. A company manufactures photo cells. It uses the expression $(2x^3)^3$ millimeters per second to calculate the maximum capacity of a photo cell with area x^3 square millimeters. Use a property of exponents to simplify this expression.

11. a. Use a property of exponents to write $(2m)^4$ as a product of powers.

b. **Generalize** Describe the property of exponents that you used.

12. **Higher Order Thinking** Find the two integers, m and n, that make the equation $(2x^n y^2)^m = 4x^6y^4$ true.

Assessment Practice

13. Select all the expressions equivalent to $(4x^5)(5x^6)$.

$(2x^5)(10x^6)$

$(4x^5)(6x^5)$

$(4x^6)(5x^5)$

$20x^{11}$

$20x^{30}$

14. You are given the expression $\frac{12^8}{12^4}$ to simplify.

PART A

Which equation shows the correct property of exponents to use?

Ⓐ $\frac{a^m}{a^n} = a^{m+n}$

Ⓑ $\frac{a^m}{a^n} = a^{m-n}$

Ⓒ $\frac{a^m}{a^n} = a^{m-a}$

Ⓓ $\frac{a^m}{a^n} = a^{n-m}$

PART B

Simplify the expression. Write your answer using exponential notation.

Choice 2

8 Algebra
Epperson Name:

PRACTICE TUTORIAL

1-7 Additional Practice

Scan for Multimedia

Week of 4/13-4/17

1. Leveled Practice Complete the table to simplify the expression.

Given	Positive Exponent Form	Expanded Form	Simplified Form
5^{-4}	$\frac{1}{\quad}$	$\frac{1}{\quad \times \quad \times \quad \times \quad}$	$\frac{1}{\quad}$

In 2–5, simplify each expression.

2. $135(z^0)$

3. $\frac{8}{9^0}$

4. $7^{-2}(-3)^2$

5. $\frac{a^{-3}}{b^{-2}}$, for $a = 5$ and $b = 6$.

In 6 and 7, compare the values using >, <, or =.

6. $\left(\frac{12}{65}\right)^0$ 1

7. 52^{-4} 1

In 8 and 9, simplify each expression.

8. $9x^2y^{-3}$, for $x = 5$ and $y = 3$.

9. $14x^{-2}$, for $x = 7$.

10. Julia has to evaluate the expression 4^{-3} before she can join her classmates outside. She decides to use the value of the expression to help choose which activity to do. If the value is greater than 1, she will play basketball. If the value is equal to 1, she will play soccer. If the value is less than 1, she will play tennis. Which activity is Julia going to do today? Explain.

Choice 2

Algebra- Epperson, week of 4/13-4/17

11. You are given the expression -6^{-4}.

a. Rewrite the expression using a positive exponent.

b. **Reasoning** Simplify the expression -6^{-4}. Is the result the same as simplifying the expression $(-6)^{-4}$? Explain.

12. **Higher Order Thinking**

a. Is the value of the expression $\left(\frac{1}{4^{-2}}\right)^3$ greater than 1, equal to 1 or less than 1?

b. If the value of the expression is greater than 1, show how you can change one sign to make the value less than 1. If the value is less than 1, show how you can change one sign to make the value greater than 1. If the value is equal to 1, show how you can make one change to make the value not equal to 1.

13. **Construct Arguments** Simplify the expression $18p^0$, assuming that p is nonzero. Will the value of the expression change with different values for p?

Assessment Practice

14. Which expressions are equal to 10^{-5}? Select all that apply.

10^5

10,000

$10{,}000^{-5}$

$\frac{1}{10^5}$

$\frac{1}{10{,}000}$

15. Which expressions have a value less than 1 when $x = 3$? Select all that apply.

$\left(\frac{3}{x^2}\right)^0$

$\frac{x^0}{3^2}$

$\frac{1}{6^{-x}}$

$\frac{1}{x^{-3}}$

$3x^{-4}$

Choice 3

Algebra
Epperson

Name:

PRACTICE TUTORIAL

1-8 Additional Practice

Week of 4/13-4/17

Scan for Multimedia

Leveled Practice In 1–3, use powers of 10 to estimate quantities.

1. Use a single digit times a power of 10 to estimate the number 0.000007328.

   Rounded to the nearest millionth, the number is about .

   Written as the product of a single digit and a power of ten, this number is $\times 10$.

2. A city has a population of 38,802,500 people. Estimate this population to the nearest ten million.

   Rounded to the nearest ten million, the population is about .

   Written as the product of a single digit and a power of ten, this number is

   $\times 10$.

3. The mass of Planet X is 8.46×10^{22} kilograms. The mass of Planet Y is 5,028,000,000,000,000,000,000 kilograms. How many times greater is the mass of Planet X than the mass of Planet Y?

   The mass of Planet Y is about $\times$ kilograms.

   The mass of Planet X is about $\times$ kilograms.

   The mass of Planet X is about times greater than that of Planet Y.

4. According to a survey, the residents of Country A have approximately 179,300,000 dogs and cats as pets. The same survey reports there are about 5.01×10^7 dogs and cats as pets in Country B. About how many times greater is the number of dogs and cats in Country A than Country B?

5. Estimate 0.00792398 to the nearest thousandth. Express your answer as a single digit times a power of ten.

6. Which number has the greater value, 7×10^{-9} or 6×10^{-4}?

7. On a certain planet, Continent X has an area of 6.23×10^6 square miles and Continent Y has an area of 63,600,000 square miles. How many time larger is Continent Y than Continent X?

Choice 3

8 Algebra- Epperson, week of 4/13-4/17

8. Dion made $67,785 last year. Express this number as a single digit times a power of ten rounded to the nearest ten thousand.

9. A rectangle has length 8×10^4 millimeters and width 4×10^4 millimeters. How many times greater is the rectangle's length than width?

10. **Construct Arguments** Tara incorrectly estimates 36,591,000,000 meters as 4×10^6 meters. Is she correct? Explain.

11. **Higher Order Thinking** An astronomical unit (AU) is equal to the average distance from the Sun to Earth.

a. An astronomical unit is about 92,955,807 miles. Use a single digit times a power of ten to estimate this value to the nearest ten million miles.

b. Venus is about 7.2×10^{-1} AU from the Sun. Mars is about 1.5 AU from the Sun. Which planet is closest to Earth?

Assessment Practice

12. The oldest rocks on Earth are about 4×10^9 years old. For which of these ages could this be an approximation?

Ⓐ 0.000000004 years

Ⓑ 3.45×10^9 years

Ⓒ 3.349999999×10^9 years

Ⓓ 4,149,000,000 years

13. Express 0.000000648 as a single digit times a power of ten rounded to the nearest ten millionth.