H1N1 Flu Lesson Plans

Dynamics of Algebra 1 RC **Margaret Cerny**

WEEK 1 - DAY 1

Objective: Reviewing Powers

Directions:

1) Read the sheet titled “Vocabulary for Chapter 10 and then copy the terms onto the worksheet that will go in your notes section of your binder.

2) Read page 240 in the green Globe text (copy provided). Complete 10.1 Finding Powers using the vocabulary sheet provided, problems #1-14.

3) When you are finished with 10.1 complete the worksheet called “Exponents,” #1-10. Read the 2 examples at the top of the page before you begin.

Homework: Complete all worksheets.

Vocabulary for Chapter 10 Exponents and Functions

exponent - the number that tells how many times the base is used as a factor.

power - the product when the factors are the same: in 3^2 = 9, the 9 is the power.

base – a factor; in 3^2, 3 is the base used as a factor two times.

scientific notation – a number written as the product of two factors, the first is a number greater than 1 and less than 10 and the second is a power of 10.

What is the speed of light?

Standard Form	**Scientific Notation**
300,000,000 m/sec.	3×10^8 m/sec

What is the mass of a dust particle?

0.000 000 000 753 kg.	753×10^{-10} kg

Name: _____ Date: _____

Vocabulary for Chapter 10 Exponents and Functions

_____ - the number that tells how many times the base is used as a factor.

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What is the speed of light?

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300,000,000 m/sec.	_____

What is the mass of a dust particle?

0.000 000 000 753 kg.	_____

10.1 Finding Powers

You have already used exponents to write numbers.

exponent
↓
base → $4^2 = 4 \cdot 4 = 16$ ← **power**

You have also written variables with exponents.

$a^3 = aaa \rightarrow a$ is used as a factor 3 times.
$a^2b^4 = aabbbb \rightarrow a$ is used as a factor 2 times.
b is used as a factor 4 times.

EXAMPLE 1 Use an exponent to rewrite $xxxx$.

$x \cdot x \cdot x \cdot x$

x is used as a factor 4 times.

x^4

$xxxx = x^4$

EXAMPLE 2 Rewrite a^5y without an exponent.

a^5y

y is the same as y^1.

a is used as a factor 5 times. y is used as a factor 1 time.

$aaaaay$

$a^5y = aaaaay$

EXAMPLE 3 Rewrite $-y^4$ without an exponent.

$-y^4$

$-y^4$ means $-(y^4)$.

y is used as a factor 4 times.

$-yyyy$

$-y^4 = -yyyy$

You can also find the value of a power.

EXAMPLE 4 Find the value of b^3 when b is -4.

b is used as a factor 3 times.

b^3

Substitute -4 for b.

bbb

The product of three negative numbers is negative.

Multiply.

$(-4)(-4)(-4)$

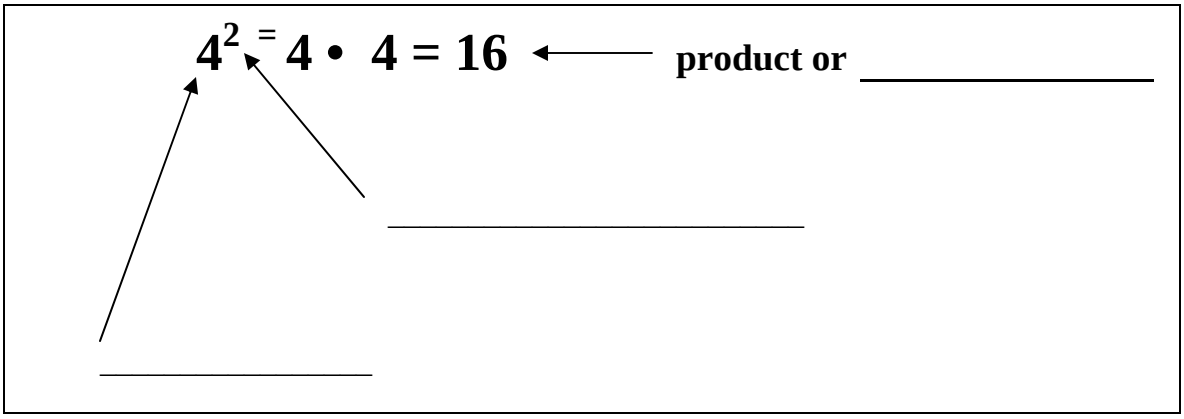
-64

$b^3 = -64$ when b is -4.

Name: _____ Date:_____

10.1 Finding Powers

You have already used **exponents to write numbers.**



Example 1 Use an exponent to rewrite ***xxxx*** _____

Example 2 Rewrite a^5y without using an exponent. _____

Example 3 Find the value of b^3 when b is -4. _____

Practice

Use exponents to rewrite each product.
(look in binder for copied WS)

Name: _____ Date: _____

Exponents

I. Write in exponential form.

$4 \cdot x \cdot x \cdot y \cdot y \cdot y = 4x^2y^3$	The cube of $c - 4 = (c - 4)^3$

1. $a \cdot a \cdot a \cdot b$
2. $mn \cdot mn \cdot mn \cdot mn$
3. $9 \cdot x \cdot x \cdot x \cdot x \cdot x \cdot y \cdot y \cdot z$
4. $5 (c + 1) (c + 1) (c + 1)$
5. $(a + b)$ squared
6. The quotient of 3 and the cube of $y + 2$
7. $x \cdot x \cdot y \cdot y \cdot y \cdot y \cdot z$
8. $(-x) (-x) (-x)$
9. $3 \cdot ab \cdot ab \cdot ab \cdot ab$
10. The square of $x^2y - 3$

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WEEK 1 DAY 2

Objective: Multiplying with Exponents

Directions:

1) Read section 10.2 Multiplying with Exponents, from the green Globe text. Be careful to study all of the examples shown.

2) After reading #1 above, fill in the notes for Multiplying Powers with the same base. (first page)

3) Complete 10.2 “Multiplying with Exponents” and complete problems #1-18. Be sure to show your work.

4) When you are finished with 10.2 complete the worksheet called “Why Did The Farmer Open A Bakery?” (problems #1-18)

Homework: Finish all work.

DAY 2

Notes for Chapter 10 Exponents and Functions

Multiplication of Powers with the same base

1. To multiply powers with the **same base** _____ the exponents and keep the base.

Ex. Multiply. $4\,b^{2}\,c^{4} \cdot 3\,b\,c^{2} =$

$(4)\,(3)\quad b^{2}\,b\quad c^{4}\,c^{2} =$

$12\qquad b^{3}\qquad c^{6}$

$\boxed{12\,b^{3}\,c^{6}}$

2. Sometimes the base of a power is another power.

Ex. Multiply. $(a^{3})^{2} =$

$(a^{3}) \cdot (a^{3}) = a^{3+3} = a^{6}$

Power of a Power Property

To find a power of a power, you _____ the exponents.

10.2 Multiplying with Exponents

You can multiply powers when the bases are the same. First, rewrite each power as the product of factors. Then, see how many times each base is used as a factor.

EXAMPLE 1 Multiply. $a^2 \cdot a^3$

$a^2 \cdot a^3$

Write as factors. $aa \cdot aaa$

$aaaaa$

Rewrite with an exponent. a^5

$a^2 \cdot a^3 = a^5$

EXAMPLE 2 Multiply. $b^2 \cdot ab$

$b^2 \cdot ab$

Write as factors. $bb \cdot ab$

Rearrange the factors. $abbb$

Rewrite with an exponent. ab^3

The Commutative Property of Multiplication lets you rearrange the factors.

$b^2 \cdot ab = ab^3$

EXAMPLE 3 Multiply. $ab^2 \cdot a^2b^3$

$ab^2 \cdot a^2b^3$

Write as factors. $abb \cdot aabbb$

Rearrange the factors. $aaabbbbb$

Rewrite with exponents. a^3b^5

$ab^2 \cdot a^2b^3 = a^3b^5$

Multiply any coefficients first.

EXAMPLE 4 Multiply. $3x^2y \cdot 2x$

Multiply the coefficients. $3x^2y \cdot 2x$

Write as factors. $6xxy \cdot x$

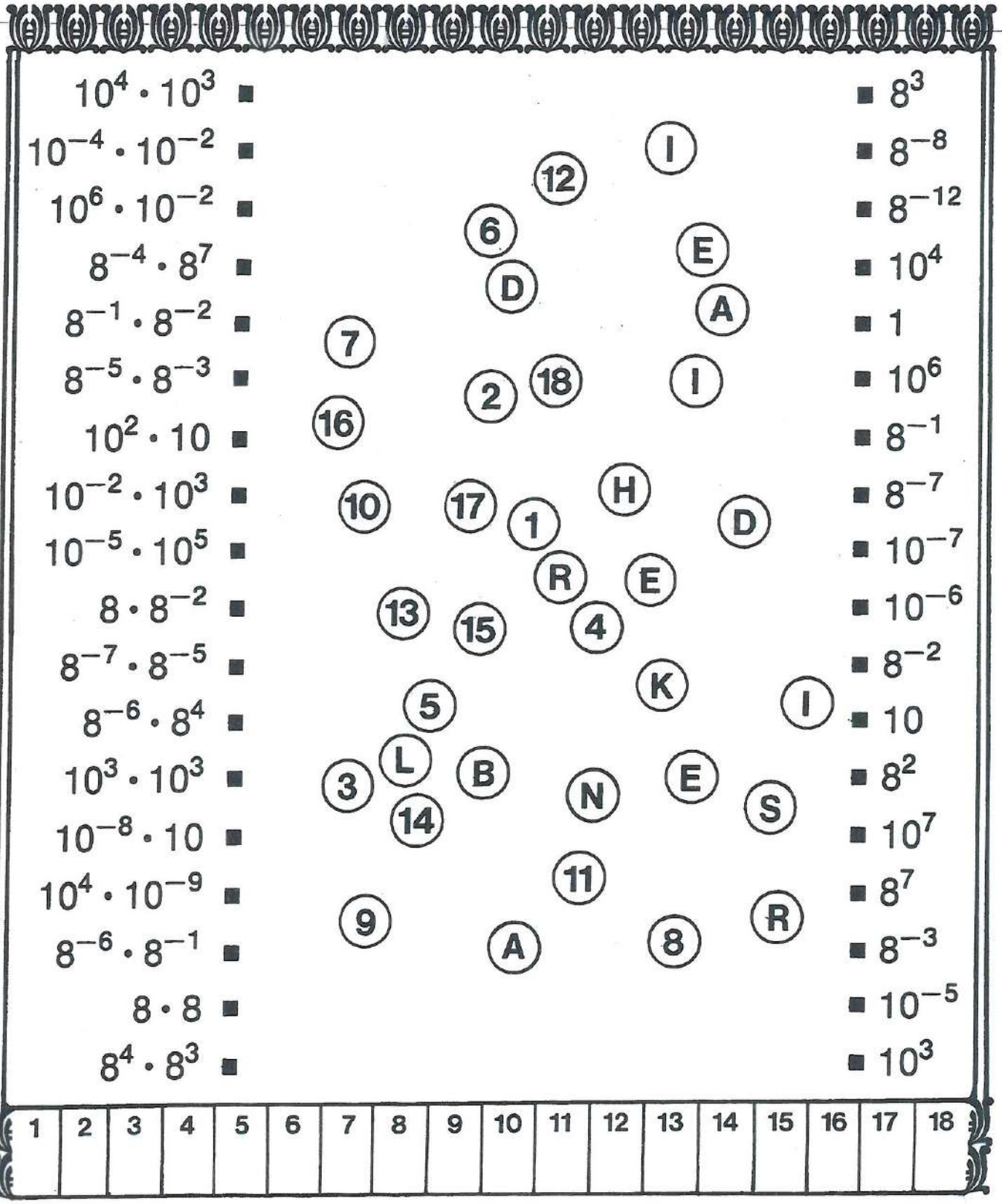
Rearrange the factors. $6xxxy$

Rewrite the variables with an exponent. $6x^3y$

$3x^2y \cdot 2x = 6x^3y$

Why Did The Farmer Open A Bakery?

TO ANSWER THIS QUESTION: Express each product below as a single power of 10 or 8. Draw a straight line connecting each exercise with its answer. Each line will cross a number and a letter. The number tells you where to put the letter in the row of boxes at the bottom of the page.



Name: _____ Date: _____

10.2 Multiplying with Exponents

You can multiply powers when the bases are the same.

TRY THESE

Multiply.

1. $b^4 \cdot 3b^2$

	$b^4 \cdot 3b^2$
Write as factors.	$bbbb \cdot 3$▩
Rearrange the factors.	$3bbbbbb$
Rewrite with an exponent.	$3b^{▩}$

$b^4 \cdot 3b^2 =$ ▩

2. $-2c^2d \cdot 5cd$

Multiply the coefficients.	$-2c^2d \cdot 5cd$
	▩c^2dcd
Write as factors.	▩$ccdcd$
▩ the factors.	▩$cccdd$
Rewrite the variables with exponents.	▩$\cdot$▩$c^{▩}d^{▩}$

$-2c^2d \cdot 5cd =$ ▩

Practice

Multiply.

1. $c^3 \cdot c$
2. $d^2 \cdot d^5$
3. $x^3 \cdot x^3$
4. $5a^3 \cdot 2ab^2$
5. $xy \cdot x$
6. $4c^2d \cdot 5c^2d$
7. $-3a \cdot -2b$
8. $5 \cdot 3t^2$
9. $x \cdot 2x$

10. $x^2y^2 \cdot x^2y$

11. $-3a^3d \cdot ad^2$

12. $2bc^4 \cdot 3b^2c^2$

13. $6b^4 \cdot 2ab^2$

14. $x^6y \cdot 3x^5y$

15. $-2h^3g^4 \cdot -4h^2g^2$

16. $7np^3 \cdot 3np$

17. $3y^2 \cdot -y$

18. $-4ab \cdot -6ab$