Lesson # 62

Powers and Roots

Date

Warmup

1. Evaluate 1^5

2. Write 7^4 as a product of the same factor.

3. Use exponents to write $3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 2$

4. Simplify the expression: $4 \cdot 4 \cdot x \cdot x \cdot y \cdot 4 \cdot x \cdot y \cdot x$

5. $(\_\_\_\_\_)^2 = 16$

Lesson # 62

Powers and Roots

Date

I. Exponents
II. Variables with Exponents
III. Roots
IV. Simplifying Expressions with Squares and Roots

I. Exponents

$base^{exponent}$

$bbbbb$ = ____

Common factors

The _____ tells how many times the _____ is used as a factor.

The _____ is the common factor.

To simplify expressions with exponents:

1. Find the product of numeric factors.
2. Write the variable factors with exponents.

(when possible, write them in alphabetical order)

4^3

$\left(\frac{2}{5}\right)^2$

6. 7^3

7. $\left(\frac{1}{3}\right)^4$

II. Variables with Exponents

$2^5 stsrt =$

10. $5^2 cd \cdot 5cd$

$9xxy \cdot 9yz =$

11. $3^2 aac \cdot 3^2 cc$

III. Roots

$4^2 = 16$

$\sqrt{16} =$ _____

The inverse operation of raising to a power is called **taking the root**.

$\sqrt{9} =$ _____ What number multiplied by itself is 9?

$\sqrt{64} =$ _____ What number multiplied by itself is 64?

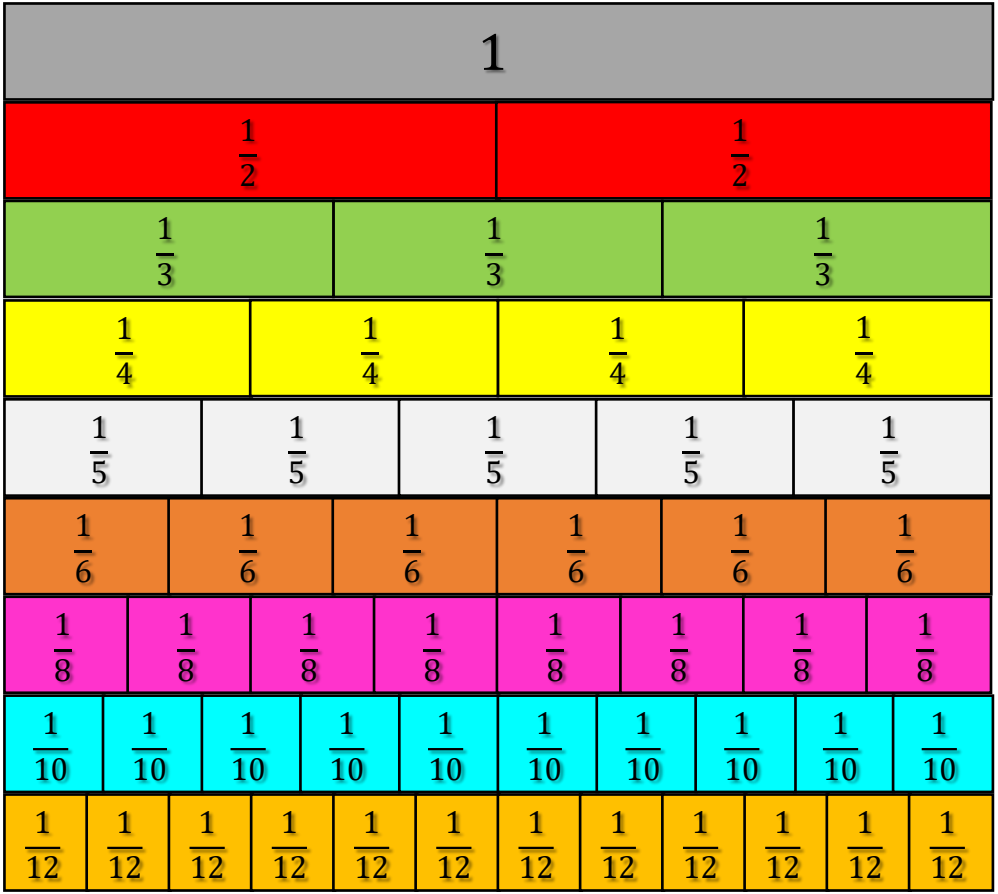
$\sqrt{100}$	$\sqrt[3]{27}$	13. $\sqrt{121}$	14. $\sqrt[4]{16}$

$(4 + 3 \times 1)^2 + 7 =$

$24 - (3 - 2)^2 \div (5 \cdot 1)$

16. $-2(2 + 3 + 5) + 8^2 - \sqrt[3]{64} + \frac{8}{-4}$

17. $5(8) + 3^3$


1
1/2 1/2
1/3 1/3 1/3
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1/5 1/5 1/5 1/5 1/5
1/6 1/6 1/6 1/6 1/6 1/6
1/8 1/8 1/8 1/8 1/8 1/8 1/8 1/8
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