

# Board PROBLEMS

Ch. 19

①  $\sqrt{225} = \underline{\hspace{2cm}}$  (2)  $-\sqrt{196} = \underline{\hspace{2cm}}$

(3)  $6^2 \cdot 6 \cdot 6^4 = \underline{\hspace{2cm}}$

(4)  $x^3 \cdot x^4 \cdot y^3 = \underline{\hspace{2cm}}$

(5)  $7^8 \div 7 = \underline{\hspace{2cm}}$

(6)  $x^{4y} \cdot x^{6y} \div x^{2y} = \underline{\hspace{2cm}}$

(7) WHEN YOU            TWO NUMBERS WITH THE SAME BASE, YOU subtract the exponent.

\* (8)  $x^{-3} = \underline{\hspace{2cm}}$  (MAKE exponent positive)

\* only if you remember. this is a challenge.

# Ch. 19 - NEGATIVE EXPONENTS

$$\frac{2^2}{2^5} = \underline{\hspace{2cm}}$$

$$\frac{2 \cdot 2}{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2} = \underline{\hspace{2cm}}$$

HAVE A NEGATIVE EXPONENT? THINK           

OPPOSITE PLACE ( $\frac{\text{NUMERATOR}}{\text{DENOMINATOR}}$ ), OPPOSITE SIGN.

$$3^{-3} = \underline{\hspace{2cm}}$$

$$\frac{1}{2^4} = \underline{\hspace{2cm}}$$

$$2^5 = \underline{\hspace{2cm}}$$

$$\frac{1}{3^{-3}} = \underline{\hspace{2cm}}$$

RULE:  $\frac{1}{x^a} = \underline{\hspace{2cm}}$

$$\frac{1}{x^{-a}} = \underline{\hspace{2cm}}$$

POWER OF  $\phi$ .

$$\underline{\hspace{2cm}} = \frac{10^2}{10^2} = \underline{\hspace{2cm}}$$

ANYTHING TO THE EXPONENT OF 0 =           

$$5^0 = \underline{\hspace{2cm}}$$

$$100^0 = \underline{\hspace{2cm}}$$

$$2001^0 = \underline{\hspace{2cm}}$$

$$x^0 = \underline{\hspace{2cm}}$$

# Ch. 19 (notes)

RAISING AN EXPONENT TO AN EXPONENT.

$$(5^4)^3 = \underline{\hspace{2cm}}$$

$$5^4 \cdot 5^4 \cdot 5^4 = \underline{\hspace{2cm}}$$

$$(X^A)^B = \underline{\hspace{2cm}}$$

$$[(6^3)^2]^{-4} = \underline{\hspace{2cm}}$$

$$(2x^3y^8)^3 = \underline{\hspace{2cm}}$$

$$\left(\frac{2}{3}x^5z^{-3}\right)^4 = \underline{\hspace{2cm}}$$

REDUCE BASES

$$64 = 4^-$$

$$64 = 8^-$$

$$64 = 2^-$$

SIMPLIFYING

$$\textcircled{1} M \cdot B^2 \cdot B^0 \cdot M^{-4} \cdot B^{-5} \cdot M^8$$

$$\textcircled{2} \frac{F^4 \cdot K^2}{K^8 F^{-5}} =$$

Move Denominator up to numerator FIRST

$$\textcircled{3} \frac{x^2 \cdot y^3 \cdot z^4}{z^3 x^2 y} =$$

$$\textcircled{4} \frac{x^{-4} y^{-3} x^2}{x^{-5} y^{-7}} =$$

Name \_\_\_\_\_

Solve simultaneous equations by SUBSTITUTION.

1.  $y = 5x - 7$   
 $-3x - 2y = -12$

Solve simultaneous equations by ELIMINATION.

1.  $5x + 8y = -17$   
 $2x - 7y = -17$

2.  $3x - 8y = 24$   
 $-5x + y = -3$

## LESSON PRACTICE

Write on one line.

1.  $\frac{1}{4^2} =$

2.  $\frac{1}{7^2} =$

3.  $\frac{1}{4^{-3}} =$

4.  $\frac{1}{3^{-2}} =$

Rewrite using positive exponents.

5.  $5^{-3} =$

6.  $10^{-7} =$

Simplify each expression and write it on one line.

7.  $7^{-3} \cdot 7^{-8} =$

8.  $6^{-2} \cdot 6^{-3} =$

9.  $9^{-5} \div 9^{-2} =$

10.  $3^{-8} \cdot 3^4 =$

Simplify each expression and write it on one line.

11.  $B^{-2} B^3 C^{-1} B^5 C^{-5} C^1 =$

12.  $C^{-1} D^{-5} D^4 C^3 D^{-2} D^4 C^1 =$

13.  $(8^5)^4 =$

14.  $(9^3)^5 =$

15.  $\frac{A^{-1}B^2B^{-1}}{AB^{-3}} =$

16.  $\frac{C^0B^{-3}C^3B}{C^{-3}B^4} =$