

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

BLOCK: \_\_\_\_\_

## Division with Exponents

### Lesson 24

When dividing numbers with exponents and the **BASES** are the **SAME**, we can either **SUBTRACT** the **EXPONENTS** or write the reciprocal of the divisor and then add like when we multiply with exponents.

#### EXAMPLES:

$$1.) \quad 8^5 \div 8^2 = \frac{\cancel{8} \times \cancel{8} \times 8 \times 8 \times 8}{\cancel{8} \times \cancel{8}} = \boxed{8^3}$$

$$= 8^{5-2} = \boxed{8^3}$$

$$2.) \quad \frac{5^6}{5^{-4}} = 5^{6 - (-4)} = 5^{6 + (+4)} = \boxed{5^{10}}$$

$$3.) \quad \frac{8^3 \times 4^4 \times 8^5}{4^{-3} \times 8^3 \times 4^6} = 8^3 \times 4^4 \times 8^5 \times \underbrace{4^3 \times 8^{-3} \times 4^{-6}}_{\text{reciprocal of opposite}}$$

$$= 8^{3+5+(-3)} \times 4^{4+3+(-6)}$$

$$= \boxed{8^5 \times 4^1}$$