

# Negative Exponents (7NS 1.7):

Name \_\_\_\_\_

Class \_\_\_\_\_ Date \_\_\_\_\_

Score \_\_\_\_\_

## Whole numbers with Negative Exponents

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

$$= \frac{1}{16}$$

If there is a **whole number** with a negative exponent, move the whole number to the denominator and **make the exponent positive**. The number 1 will be the numerator.

## Denominators with Negative Exponents

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

$$= 9$$

If you have a base with a **negative number** in the denominator, move it to the numerator and make the exponent **positive**.

## Dividing Negative Exponents

$$\frac{5^{-2}}{5^{-5}} = 5^{-2-(-5)}$$

$$= 5^{-2+5}$$

$$= 5^3$$

$$= 125$$

When you **divide** whole numbers with exponents, bases, make sure their **bases** are the same then **subtract** the exponent in the denominator from the exponent in the numerator.

## Multiplying Negative Exponents

$$3^6 \cdot 3^{-2} = 3^{-2+6}$$

$$= 3^4$$

$$= 81$$

When you **multiply** whole numbers with exponents, make sure their **bases** are the same, then **add** the exponents.

1) What number equals  $4^{-3}$ ?

- A.  $-\frac{1}{64}$
- B.  $\frac{1}{64}$
- C.  $\frac{1}{12}$
- D. -64

2) Which of the following equals  $2^{-9}$ ?

- A. -512
- B.  $\frac{1}{2^9}$
- C.  $-(2^9)$
- D.  $(-2)^9$

3) What number equals  $5^{-4}$ ?

- A.  $-\frac{1}{20}$
- B.  $\frac{1}{20}$
- C.  $\frac{1}{625}$
- D. -625

4) What number equals  $10^{-8}$ ?

- A. -100,000,000
- B.  $\frac{1}{100,000,000}$
- C.  $\frac{1}{100,000,000}$
- D. 100,000,000

5) What number equals  $18^{-7}$ ?

- A.  $-\frac{1}{18^7}$
- B.  $-18^7$
- C.  $-18^{-7}$
- D.  $\frac{1}{18^7}$

6) What number equals  $\left(\frac{1}{2}\right)^{-3}$ ?

- A. 8
- B.  $\frac{1}{8}$
- C.  $-\frac{1}{8}$
- D. -8

## Negative Exponents (7NS 1.7):

7) What number equals  $\frac{1}{5^{-2}}$  ?

- A. -25
- B. 25
- C.  $\frac{1}{25}$
- D.  $-\frac{1}{25}$

8) What number equals  $\frac{1}{13^{-4}}$  ?

- A.  $13^4$
- B.  $-13^4$
- C.  $-\frac{1}{13^4}$
- D.  $\frac{1}{52}$

9) What number equals  $\frac{1}{6^{-3}}$  ?

- A. -216
- B. 216
- C.  $\frac{1}{216}$
- D.  $-\frac{1}{216}$

10) What number equals  $\frac{1}{224^{15}}$  ?

- A.  $\frac{1}{224^{15}}$
- B.  $\frac{1}{224 \times 15}$
- C.  $224^{15}$
- D.  $-224^{15}$

11)  $6^{-3} \times 6^{-5} =$

- A.  $36^{-8}$
- B.  $36^{-15}$
- C.  $6^{-8}$
- D.  $6^{-15}$

12)  $5^{-2} \times 5^{-1} =$

- A.  $\frac{1}{25^3}$
- B.  $\frac{1}{5^{-3}}$
- C.  $\frac{1}{25^2}$
- D.  $\frac{1}{5^3}$

13)  $8^{-8} \times 8^{-10} =$

- A.  $-\frac{1}{8^{18}}$
- B.  $-8^{18}$
- C.  $8^{18}$
- D.  $\frac{1}{8^{18}}$

14)  $10^{-5} \times 10^2 =$

- A.  $\frac{1}{10}$
- B.  $\frac{1}{100}$
- C.  $\frac{1}{1,000}$
- D.  $\frac{1}{10,000}$

15)  $15^{-8} \times 5^{-4} =$

- A.  $\frac{1}{1,512}$
- B.  $\frac{1}{154}$
- C. 154
- D. 1,512