

Name \_\_\_\_\_  
Period \_\_\_\_\_

## Unit 1 Review Exponents

### Product of a Power

1. Does  $9^5 \cdot 9^2$  simplify to  $9^{10}$ . Give evidence.

Simplify:

2.  $8^{12} \cdot 8^3 =$  \_\_\_\_\_

3.  $(y^{10})(y) =$  \_\_\_\_\_

4.  $3x \cdot 7x^8 =$  \_\_\_\_\_

5.  $(12m^5)(-2m^{-2}) =$  \_\_\_\_\_

### Quotient of a Power

6. Which of the simplified is correct? Why?

$$\frac{6^4}{6^7} = 6^3$$

$$\frac{6^4}{6^7} = 6^{-3}$$

Simplify:

7.  $\frac{12x^9}{15x^3} =$  \_\_\_\_\_

8.  $\frac{a^5b^9c^6}{abc^2} =$  \_\_\_\_\_

### Power of a Power

9. Describe how  $(b^7)^4$  should be simplified.

10.  $(x^6)^5 =$  \_\_\_\_\_

11.  $(13^4)^7 =$  \_\_\_\_\_

12.  $(-2a^3b^9c^2)^3 =$  \_\_\_\_\_

13.  $(x^4yz^7)^5 =$  \_\_\_\_\_

### Negative Exponent Property

Do the following expressions simplify to  $\frac{1}{d^3}$  ?

14.  $\frac{d^7}{d^{10}}$  Yes or no? Prove it:

15.  $\frac{d^A}{d}$  Yes or no? Prove it:

Simplify:

16.  $m^{-10} =$  \_\_\_\_\_

17.  $5v^{-7} =$  \_\_\_\_\_

18.  $k^9 \cdot k^{-12} =$  \_\_\_\_\_

19.  $(a b^6) (a^{-4}b^{-2}) =$  \_\_\_\_\_

20.  $\frac{y^{-2}}{y^{-10}} =$  \_\_\_\_\_

21.  $\frac{a^{14}}{a^{14}} =$  \_\_\_\_\_

22.  $\frac{h^{25}}{h^{37}} =$  \_\_\_\_\_

23.  $-7x^0 \cdot x^8 =$  \_\_\_\_\_