

Name: \_\_\_\_\_



## DIVIDING EXPONENTS WITH THE SAME BASE

The Quotient Property

$$a^b \div a^c = a^{b-c} \quad \text{or} \quad \frac{a^b}{a^c} = a^{b-c}$$

**PART I:** Use the quotient property to solve each of the following. The first problem has already been solved for you.

1.  $10^{14} \div 10^3 = \underline{10^{11}}$

7.  $\frac{50^{44}}{50^5} = \underline{\hspace{2cm}}$

2.  $2^9 \div 2^6 = \underline{\hspace{2cm}}$

8.  $18^{20} \div 18^{11} = \underline{\hspace{2cm}}$

3.  $\frac{8^8}{8^4} = \underline{\hspace{2cm}}$

9.  $100^{25} \div 100^5 = \underline{\hspace{2cm}}$

4.  $13^{20} \div 13^3 = \underline{\hspace{2cm}}$

10.  $\frac{12^{51}}{12^{17}} = \underline{\hspace{2cm}}$

5.  $\frac{24^3}{24} = \underline{\hspace{2cm}}$

11.  $3^{33} \div 3^{30} = \underline{\hspace{2cm}}$

6.  $22^{11} \div 22^6 = \underline{\hspace{2cm}}$

12.  $\frac{4^{56}}{4^{29}} = \underline{\hspace{2cm}}$

**PART II:** Use the quotient property to solve each of the following. The first problem has already been solved for you.

13.  $c^{21} \div c^{14} = \underline{c^7}$

19.  $\frac{c^{96}}{c^{46}} = \underline{\hspace{2cm}}$

14.  $x^{18} \div x^{10} = \underline{\hspace{2cm}}$

20.  $x^{39} \div x^{26} = \underline{\hspace{2cm}}$

15.  $\frac{y^{28}}{y^7} = \underline{\hspace{2cm}}$

21.  $z^{41} \div z = \underline{\hspace{2cm}}$

16.  $b^{33} \div b^{11} = \underline{\hspace{2cm}}$

22.  $\frac{w^{100}}{w^{25}} = \underline{\hspace{2cm}}$

17.  $\frac{g^{60}}{g^{25}} = \underline{\hspace{2cm}}$

23.  $y^{18} \div y^9 = \underline{\hspace{2cm}}$

18.  $r^{100} \div r^{49} = \underline{\hspace{2cm}}$

24.  $\frac{f^{79}}{f^{12}} = \underline{\hspace{2cm}}$

## ANSWER KEY

### PART I:

1.  $10^{14} \div 10^3 = \underline{10^{11}}$

2.  $2^9 \div 2^6 = 2^3$

3.  $\frac{8^8}{8^4} = 8^4$

4.  $13^{20} \div 13^3 = 13^7$

5.  $\frac{24^3}{24} = 24^2$

6.  $22^{11} \div 22^6 = 22^5$

7.  $\frac{50^{44}}{50^5} = 50^{39}$

8.  $18^{20} \div 18^{11} = 18^9$

9.  $100^{25} \div 100^5 = 100^{20}$

10.  $\frac{12^{51}}{12^{17}} = 12^{34}$

11.  $3^{33} \div 3^{30} = 3^3$

12.  $\frac{4^{56}}{4^{29}} = 4^{27}$

### PART II:

13.  $c^{21} \div c^{14} = \underline{c^7}$

14.  $x^{18} \div x^{10} = x^8$

15.  $\frac{y^{28}}{y^7} = y^{21}$

16.  $b^{33} \div b^{11} = b^{22}$

17.  $\frac{g^{60}}{g^{25}} = g^{35}$

18.  $r^{100} \div r^{49} = r^{51}$

19.  $\frac{c^{96}}{c^{46}} = c^{50}$

20.  $x^{39} \div x^{26} = x^{13}$

21.  $z^{41} \div z = z^{40}$

22.  $\frac{w^{100}}{w^{25}} = w^{75}$

23.  $y^{18} \div y^9 = y^9$

24.  $\frac{f^{79}}{f^{12}} = f^{67}$