

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



## MULTIPLYING EXPONENTS WITH THE SAME BASE

The Product Property

$$a^b \times a^c = a^{b+c}$$

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

1.  $9^{11} \times 9^6 = \underline{9^{17}}$

7.  $30^9 \times 30^{21} = \underline{\hspace{2cm}}$

2.  $13^{12} \times 13^{15} = \underline{\hspace{2cm}}$

8.  $15^{29} \times 15^3 = \underline{\hspace{2cm}}$

3.  $9^{10} \times 9^{11} = \underline{\hspace{2cm}}$

9.  $100^6 \times 100^{10} = \underline{\hspace{2cm}}$

4.  $22^3 \times 22^4 = \underline{\hspace{2cm}}$

10.  $10^{31} \times 10^{34} = \underline{\hspace{2cm}}$

5.  $16^{50} \times 16^{25} = \underline{\hspace{2cm}}$

11.  $2^{12} \times 2^{17} = \underline{\hspace{2cm}}$

6.  $8^{17} \times 8^{34} = \underline{\hspace{2cm}}$

12.  $60^{13} \times 60^5 = \underline{\hspace{2cm}}$

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

13.  $c^{22} \times c^{20} = \underline{c^{42}}$

19.  $x^{14} \times x^{21} = \underline{\hspace{2cm}}$

14.  $x^9 \times x^4 = \underline{\hspace{2cm}}$

20.  $y^{56} \times y^9 = \underline{\hspace{2cm}}$

15.  $p^{22} \times p^5 = \underline{\hspace{2cm}}$

21.  $x^{19} \times x^{36} = \underline{\hspace{2cm}}$

16.  $x^{17} \times x^{15} = \underline{\hspace{2cm}}$

22.  $b^3 \times b^4 = \underline{\hspace{2cm}}$

17.  $g^3 \times g^{29} = \underline{\hspace{2cm}}$

23.  $k^{10} \times k^{27} = \underline{\hspace{2cm}}$

18.  $m^{80} \times m^{11} = \underline{\hspace{2cm}}$

24.  $y^{30} \times y^{40} = \underline{\hspace{2cm}}$

## ANSWER KEY

### PART I:

1.  $9^{11} \times 9^6 = \underline{9^{17}}$

2.  $13^{12} \times 13^{15} = 13^{27}$

3.  $9^{10} \times 9^{11} = 9^{21}$

4.  $22^3 \times 22^4 = 22^7$

5.  $16^{50} \times 16^{25} = 16^{75}$

6.  $8^{17} \times 8^{34} = 8^{51}$

7.  $30^9 \times 30^{21} = 30^{30}$

8.  $15^{29} \times 15^3 = 15^{32}$

9.  $100^6 \times 100^{10} = 100^{16}$

10.  $10^{31} \times 10^{34} = 10^{65}$

11.  $2^{12} \times 2^{17} = 2^{29}$

12.  $60^{13} \times 60^5 = 60^{18}$

### PART II:

13.  $c^{22} \times c^{20} = \underline{c^{42}}$

14.  $x^9 \times x^4 = x^{13}$

15.  $p^{22} \times p^5 = p^{27}$

16.  $x^{17} \times x^{15} = x^{32}$

17.  $g^3 \times g^{29} = g^{32}$

18.  $m^{80} \times m^{11} = m^{91}$

19.  $x^{14} \times x^{21} = x^{35}$

20.  $y^{56} \times y^9 = y^{65}$

21.  $x^{19} \times x^{36} = x^{55}$

22.  $b^3 \times b^4 = b^7$

23.  $k^{10} \times k^{27} = k^{37}$

24.  $y^{30} \times y^{40} = y^{70}$