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. $4^3 \times 4^2 =$ 4^5
2. $2^5 \times 2^3 =$ _____
3. $9^5 \times 9^5 =$ _____
4. $3^3 \times 3^4 =$ _____
5. $11^2 \times 11^{10} =$ _____
6. $8^4 \times 8^8 =$ _____
7. $5^9 \times 5^5 =$ _____
8. $14^{19} \times 14^{11} =$ _____
9. $6^{16} \times 6^6 =$ _____
10. $10^{13} \times 10^{14} =$ _____
11. $7^7 \times 7^{21} =$ _____
12. $16^{24} \times 16^{19} =$ _____

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

13. $x^3 \times x^7 =$ x^{10}
14. $a^6 \times a^2 =$ _____
15. $y^3 \times y^3 =$ _____
16. $x^7 \times x^5 =$ _____
17. $b^{13} \times b^9 =$ _____
18. $m^{11} \times m^{15} =$ _____
19. $y^{20} \times y^{10} =$ _____
20. $s^{23} \times s^6 =$ _____
21. $x^{49} \times x^{51} =$ _____
22. $c^{33} \times c^{51} =$ _____
23. $j^9 \times j^{10} =$ _____
24. $w^{36} \times w^3 =$ _____

ANSWER KEY

PART I:

1. $4^3 \times 4^2 = 4^5$
2. $2^5 \times 2^3 = 2^8$
3. $9^5 \times 9^5 = 9^{10}$
4. $3^3 \times 3^4 = 3^7$
5. $11^2 \times 11^{10} = 11^{12}$
6. $8^4 \times 8^8 = 8^{12}$
7. $5^9 \times 5^5 = 5^{14}$
8. $14^{19} \times 14^{11} = 14^{30}$
9. $6^{16} \times 6^6 = 6^{22}$
10. $10^{13} \times 10^{14} = 10^{27}$
11. $7^7 \times 7^{21} = 7^{28}$
12. $16^{24} \times 16^{19} = 16^{43}$

PART II:

13. $x^3 \times x^7 = x^{10}$
14. $a^6 \times a^2 = a^8$
15. $y^3 \times y^3 = y^6$
16. $x^7 \times x^5 = x^{12}$
17. $b^{13} \times b^9 = b^{22}$
18. $m^{11} \times m^{15} = m^{26}$
19. $y^{20} \times y^{10} = y^{30}$
20. $s^{23} \times s^6 = s^{29}$
21. $x^{49} \times x^{51} = x^{100}$
22. $c^{33} \times c^{51} = c^{84}$
23. $j^9 \times j^{10} = j^{19}$
24. $w^{36} \times w^3 = w^{39}$