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| In these activities you will explore and write numerical multiplication expressions using whole number exponents. After completing the activities, discuss and/or present your findings to the rest of the class. |
| **TI_SMallGroup_45p (3)Activity 1 [Page 1.3]** |
| 1. Find at least three ways to obtain each of the following: a. 64b. 531,441 |
| 2.Which seems like the best definition of an exponent? Explain your reasoning. An exponent \_\_\_\_\_\_\_\_\_\_.a. is a multiplierb. is a factorc. tells how many times a number is used as a factord. tells you to multiply a number by another number |
| 3. Reset the page. Which of the following do you think is the base of the exponent in the expression 23? Explain your thinking.a. 2 b. 3 c. 23 d. 8 |

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| **TI_SMallGroup_45p (3)Activity 2 [Page 1.4]** |
| 1. Mari argued that  was the same as .a. Use the file to see if Mari is correct**.**b. Explain how “When in doubt, write it out” can help you see if she is correct. |
| 2. Work with a partner to decide whether the following statements are true. Use the files if they will help your thinking. Explain why or why not in each case.a. b. c. d. e. f. g. h. i.  |
| 3. a. Suppose the operation multiplication was replaced by the operation addition in both expressions. Do you think the top and bottom expressions will have the same value? Why or why not? |
| b. Change the operation to addition and check your answer to 3a. c. Try the operations of subtraction and division. Do either of these produce the same outcome for both expressions?d. Find a mathematical argument to help decide whether exponents “distribute” over the four operations. |
| 4.Which of the following are true statements? Explain your reasoning in each case.a. The product of two factors raised to a power is the same as the product of each factor raised to that power.b. The sum of two squared numbers is the same as the square of the sum of the numbers.c. The quotient of two numbers to a power can be thought of as the product of the numerator to the power and the power of the unit fraction corresponding to the denominator.d. If you cube two numbers and then subtract, you will get the same answer as if you subtract the two numbers and then cube the answer. |

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| **TI_SMallGroup_45p (3)Activity 3 [Page 1.5]** |
| 1. Explain the difference among: ,,, and . Use the file to help your thinking. |
| 2. Do you agree or disagree with the following statements? Explain your thinking in each case.a. The number 5 has no exponent.b. If you have five sets where each set has four 15’s, you will have nine 15’s.c. If a multiplication problem has two factors of 5 and two factors of 9, you could write the problem as two factors of 45. |