The Same Exponent Rule

GGG 5.2 B

B. 1. Explain why each of the following statements is true.

a. $2^3 \times 3^3 = 6^3$ **b.** $5^3 \times 6^3 = 30^3$ **c.** $10^4 \times 4^4 = 40^4$

2. Give another example that fits the pattern in part (1).

3. Complete the following equation to show how you can find the base and exponent of the product when you multiply two powers with the same exponent. Explain your reasoning.

$a^m \times b^m =$?

When multiplying _____ with different _____,

and the same _____, the resulting _____ is the

_____ of the _____ and the _____remains

the same.

For example, when multiplying _____ by _____, the _____

becomes _____and the _____remains _____.

Explain in your own words why this rule works. Then give an example that you create to illustrate the rule.

(over)

The Powers Rule

GGG 5.2 C

C. 1. Explain why each of the following statements is true.

a. $4^2 = (2^2)^2 = 2^4$ **b.** $9^2 = (3^2)^2 = 3^4$ **c.** $125^2 = (5^3)^2 = 5^6$

2. Give another example that fits the pattern in part (1).

3. Complete the following equation to show how you can find the base and exponent when a power is raised to a power. Explain.

$(a^m)^n = \_?\_$

When multiplying an _____ raised to a _____,

the _____ remains the _____ and the

_____ is the _____ of the

_____.

Explain in your own words why this rule works. Then give an example that you create to illustrate the rule.