For each of the following rules of exponents, explain the rule in your own words and explain why the rule works.

1. Multiplying a power by a power:
2. Dividing a power by a power: .
3. Raising a power to a power: .
4. Exponent of 0: .

Assume that *a* > 0. Indicate if each expression would be positive or negative when simplified.

|  |  |
| --- | --- |
| **Expression** | **Positive or Negative** |
|  |  |
|  |  |
|  |  |
|  |  |

Simplify:

|  |  |
| --- | --- |
|  |  |

1. Circle any expressions below that ***cannot*** be simplified using the rules of exponents.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |

1. Explain why the expressions in #11 cannot be simplified.

**Place a check in the cells below to indicate if the expressions could be combined by addition or simplified by multiplication.**

|  |  |  |
| --- | --- | --- |
| Terms | Combined by addition? | Simplified by multiplication? |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |