**2.5 – Exponent Laws (Part 2)**

INVESTIGATE

1. Complete the following table:

|  |  |  |  |
| --- | --- | --- | --- |
| **Power of a Power** | **As Repeated Multiplication** | **As a Product of Factors** | **As a Single Power** |
| (43)2 |  |  |  |
| (32)4 |  |  |  |
| [(-5)2]3 |  |  |  |

2. What rule can you create to reduce a power of a power?

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**Exponent Laws (Part 2)**

**Power of a Power:** $(a^{m})^{n}=a^{mn}$

**Power of a Product:** $ \left(ab\right)^{m}=a^{m}b^{m}$

**Power of a Quotient:** $\left(\frac{a}{b}\right)^{n}= \frac{a^{n}}{b^{n}}$

Where *a* and *b* are rational bases, except 0; *m* and *n* are rational exponents

Ex. 1: Write as a power.

1. (62)7 (b) [(-7)3]2 (c) -(24)5

Ex. 2: Evaluate in two different ways:

 1 - using the exponent laws 2 – using the order of operations

1. (2 × 5)2
2. $\left(\frac{ 4}{(-2)}\right)^{2}$

Ex. 3: Simplify, then evaluate each expression.

1. [(-2)2]2 × (-2)2 (b) (32 × 33)2

(c) [(-4)4 ÷ (-4)2]2 (d) $-\left(\frac{3^{8}}{3^{6}}\right)^{2}$

Assignment: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_