Unit 2: Powers and Exponent Laws

Name: _____

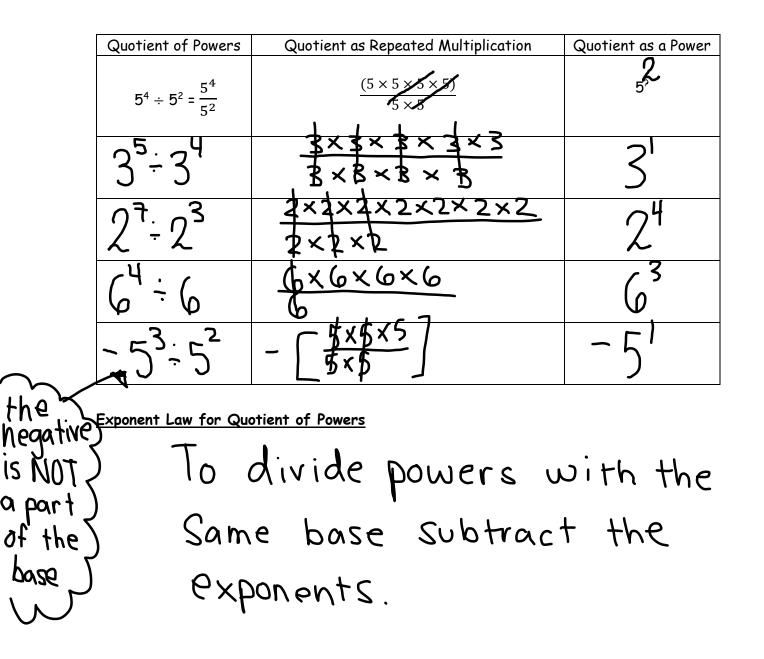
2.4 Exponent Laws I

Product of Powers	Product as Repeated Multiplication	Product as a Power
$5^4 \times 5^2$	(5×5×5×5) ×(5×5)	56
$3^2 \times 3^5$	(3x3)x(3x3x3x3x3)	3
2 ³ × 2	$(2\times2\times2)\times2$	24
$\binom{3}{6} \times \binom{4}{6}$	$(6 \times 6 \times 6) \times (6 \times 6 \times 6)$	(F)
$7^2 \times 7^3$	$(7\times7)\times(7\times7\times7)$	75

Exponent Law for Product of Powers

To multiply powers with the same base add the exponents.

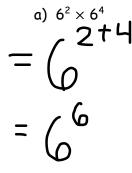
 $O_{W} \times O_{U} = O_{W + U}$

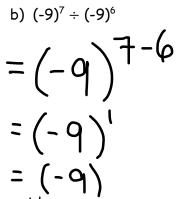


 $O_{W} = O_{V} = O_{W} - V$

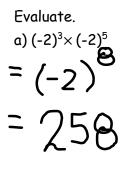
Example (1): Simplify Products and Quotients with the Same Base

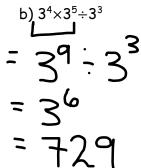
Write each expression as a power.





Example (2): Evaluating Expressions Using Exponent Laws





Example (3): Using Exponent Laws and the Order of Operations

Evaluate.
a)
$$6^{3} + 16^{2} \times 6^{5}$$

= $6^{3} + 6^{7}$
= $216 + 279936$
= 280152

b)
$$(-10)_{1}^{3}[(-10)^{5} \div (-10)^{2}] - 10^{7}$$

= $(-10)^{3} [(-10)^{3}] - 10^{7}$
= $(-10)^{6} - 10^{7}$
= $1000000 - 10000000$
= -9000000