

Name:

Date:

### Exponential Relations – Day 1: The Exponent Laws

a.  $(6^8 \div 6^4)^3$

Quotient Rule  
(8-4)

$= (6^4)^3$

Power of a Power  
Rule (4x3)

$= 6^{12}$

b.  $(4^7 \div 4^2)^5 \div (4^3 \times 4^4)^2$

$= (4^5)^5 \div (4^7)^2$

$= 4^{25} \div 4^{14}$

$= 4^{11}$

c.  $(8^2 \times 8^3)^4 \times (8^9 \div 8^5)^2$

$= (8^5)^4 \times (8^4)^2$

$= 8^{20} \times 8^8$

$= 8^{28}$

d.  $(3^6 \times 3^3) \div (3^3)^3$

$= 3^9 \div 3^9$

$= 3^0$

e.  $(5^9 \div 5^4)^3 \times (5^8 \div 5^7)^2$

$= (5^5)^3 \times (5^1)^2$

$= 5^{15} \times 5^2$

$= 5^{17}$

f.  $(7^{11} \div 7^{10}) \times (7^8 \div 7^5)^2$

$= 7^1 \times (7^3)^2$

$= 7^1 \times 7^6$

$= 7^7$