

## Practice: Discover the Exponent Laws

1. Write each expression in expanded form. Then write as a single power.

a)  $7^2 \times 7^4$

b)  $3^5 \times 3^3$

c)  $5 \times 5^2$

d)  $3^2 \times 3^4 \times 3^3$

e)  $(-2)^2 \times (-2)^3$

f)  $(-1)^3 \times (-1)^2 \times (-1)$

g)  $0.5^3 \times 0.5^2$

h)  $\left(\frac{1}{2}\right) \times \left(\frac{1}{2}\right)^3$

2. Evaluate each expression in question 1.

3. Write each expression in expanded form. Then write as a single power.

a)  $8^6 \div 8^4$

b)  $5^5 \div 5^3$

c)  $7^7 \div 7^2$

d)  $4^8 \div 4^5 \div 4$

e)  $(-9)^7 \div (-9)^6$

f)  $0.1^6 \div 0.1^4$

g)  $(-0.3)^4 \div (-0.3)$

h)  $\left(\frac{2}{3}\right)^5 \div \left(\frac{2}{3}\right)^3$

4. Evaluate each expression in question 3.

5. Write each expression in expanded form. Then, write as a single power.

a)  $(2^2)^4$

b)  $(6^2)^2$

c)  $(3^3)^2$

d)  $[(-2)^4]^3$

e)  $[(-1)^8]^6$

f)  $[(-1)^5]^7$

g)  $(0.3^2)^2$

h)  $\left[\left(\frac{2}{5}\right)^2\right]^2$

6. Evaluate each expression in question 5.

7. Use the exponent laws to simplify each expression. Then, evaluate.

a)  $4^3 \times 4^4 \div 4^5$

b)  $8^7 \div 8^7 \times 8$

c)  $\frac{9^6 \times 9^3}{9^7}$

d)  $\frac{6^5 \times 6^2}{6 \times 6^3}$

e)  $(2^4)^2 \times 2^3$

f)  $\frac{(3^2)^4 \times 3^3}{3^8}$

g)  $0.2^6 \times 0.2^5 \div (0.2^2)^5$

h)  $[(-4)^3]^4 \div [(-4)^2]^5$

8. Simplify.

a)  $b^5 \times b^3$

b)  $p^4 \times p$

c)  $w^5 \div w^2$

d)  $x^8 \div x^4$

e)  $(m^5)^2$

f)  $(k^2)^3 \times k^2$

g)  $g^5 \times g^5 \div g^7$

h)  $(a^6)^3 \div (a^5)^2$

9. Simplify.

a)  $a^4 b^5 \times ab^3$

b)  $m^2 n^4 \times m^3 n^3$

c)  $p^6 q^5 \div p^3 q^2$

d)  $6xy^2 \div 2y$

e)  $(gh^4)^3$

f)  $2k^2 m^3 \times (2k^2)^2$

g)  $(2g^5 h^3)^2 \div 2gh^6$

h)  $\frac{6b^2 d \times 3b^2 d^2}{(3bd)^2}$