Exponent Laws Review

Apply the Exponential Laws

1. Write each expression as a single power, and then evaluate.

a) $5^3 \times 5^2$ **b)** $(-4)^4 \times (-4)^3$

c) $\left(\frac{1}{2}\right)^2 \times \left(\frac{1}{2}\right)^5$ **d)** $\left(-\frac{1}{3}\right)^3 \times \left(-\frac{1}{3}\right)^2$

2. Write each expression as a single power, and then evaluate.

a) $8^5 \div 8^3$ **b)** $2^9 \div 2^4$

c) $\left(\frac{1}{4}\right)^7 \div \left(\frac{1}{4}\right)^3$ **d)** $\left(-\frac{1}{2}\right)^{12} \div \left(-\frac{1}{2}\right)^6$

3. Write as a single power, and then evaluate.

a) $(5^3)^2$ **b)** $(2^2)^4$

c) $[(-3)^3]^2$ **d)** $\left[\left(\frac{1}{2}\right)^3\right]^3$

Zero and Negative Exponents

4. Evaluate. Express your answers as fractions or integers.

a) 4^0 **b)** 3^{-1} **c)** 6^{-2}

d) 2^{-5} **e)** $(-5)^{-3}$ **f)** $-\left(\frac{3}{4}\right)^0$

5. Simplify. Write your answers using only positive exponents.

a) $(x^2)(x^7)$ **b)** $a^8 \times a^{-5}$ **c)** $b^7 \div b^{-4}$

d) $(t^6)^{-2}$ **e)** $\frac{k^{-8}}{k^{-3}}$ **f)** $\frac{\left(n^{12}\right)^0}{n^{-9}}$