

**2.4/2.5 - Exponent Laws with Order of Operations**

Ex. 1: Simplify, then evaluate each expression.

$$\begin{aligned} \text{(a)} \quad & (-6)^2 + (-6)^3 \div (-6)^2 \\ & = (-6)^2 + (-6)^1 \\ & = 36 + (-6) \\ & = \boxed{30} \end{aligned}$$

$$\begin{aligned} \text{(b)} \quad & (-10)^3 [(-10)^6 \div (-10)^5] - 10^3 \\ & = (-10)^3 \times (-10)^1 - 10^3 \\ & = (-10)^4 - 10^3 \\ & = 10000 - 1000 \\ & = \boxed{9000} \end{aligned}$$

$$\begin{aligned} \text{(c)} \quad & (4^2 \times 4^3)^2 - (5^4 \div 5^2)^2 \\ & = (4^5)^2 - (5^2)^2 \\ & = 4^{10} - 5^4 \\ & = 1048576 - 625 \\ & = \boxed{1047951} \end{aligned}$$

$$\begin{aligned} \text{(d)} \quad & [(-2)^3]^2 + \left(\frac{3^8}{3^6}\right)^2 \\ & = (-2)^6 + \left(\frac{3^2}{3^0}\right)^2 \\ & = (-2)^6 + (3^2)^2 \\ & = (-2)^6 + 3^4 \\ & = 64 + 81 \\ & = \boxed{145} \end{aligned}$$

Assignment: 2.4/2.5 Practice - Exponent Laws with Order of Operations