Negative and Zero Exponents

$$x^0 = 1$$

$$x^{-m} = \frac{1}{x^m} \qquad \frac{1}{x^{-m}} = x^m \qquad \frac{x^{-m}}{y^{-n}} = \frac{y^n}{x^m}$$

Directions: Find the value of each expression.

1. 4^{-2}

2. $(-5)^{-2}$

3. -6^{-2}

4. $-(3)^0$

5. $(-3)^0$

6. $\frac{1}{4^0}$

7. $3^4 \bullet 3^{-6}$

8. $\frac{5^8}{5^{11}}$

Directions: Simplify each expression.

9. $\dfrac{6ab^{-2}}{3a^{-4}b}$

10. $2^{-3}x^{2}y^{-4}z$

11. $\dfrac{16x^{-2}y^{-3}z}{24x^{-4}y^{5}z^{-6}}$

12. $\dfrac{8s^{0}t^{-3}}{54s^{-5}t^{-4}}$

13. $\left(56x^2y^{-3}\right)^0$

14. $\dfrac{\left(2a^3\right)\left(10a^6\right)}{4a^{-1}}$

15. $\left(\dfrac{6d^{-5}}{-3d^{-4}}\right)^{-3}$