Math 1 **Name:** _____

Unit 4.1 Zero and negative exponents PRACTICE

Period: _____

Simplify each expression.

1. 13^0

2. 5^{-3}

3. $\frac{3}{3^{-4}}$

4. $\frac{2}{4^{-1}}$

5. $-(7)^{-2}$

6. 46^{-1}

7. -6^0

8. $-(12x)^{-2}$

9. $\frac{1}{8^0}$

10. $6bc^0$

11. $-(11x)^0$

12. $\left(\frac{2}{9}\right)^{-2}$

13. $3m^{-8}p^0$

14. $\frac{5a^{-4}}{2c}$

15. $\frac{-3k^{-3}(mn)^3}{p^{-8}}$

16. $\left(\frac{2m}{3n}\right)^{-3}$

17. $8^{-2}q^3r^{-5}$

18. $-(10a)^{-4}b^0$

19. $\frac{11xy^{-1}z^0}{v^{-3}}$

20. $\frac{5m^{-1}}{9(ab)^{-4}c^7}$

Evaluate each expression for a = -4, b = 3, and c = 2.

21. $3a^{-1}$

22. b^{-3}

23. $4a^2b^{-2}c^3$

24. $9a^0c^4$

25. $-a^{-2}$

26. $(-c)^{-2}$

Write each number as a power of 10 using negative exponents.

27. $\frac{1}{1000}$

28. $\frac{1}{10}$

Write each expression as a decimal.

29. 10^{-3}

30. $8 \cdot 10^{-4}$

31. The number of people who vote early doubles every week leading up to an election. This week 1200 people voted early. The expression $1200 \cdot 2^w$ models the number of people who will vote early w weeks after this week. Evaluate the expression for $w = -3$. Describe what the value of the expression represents in the situation.

32. A pizza shop makes large pizzas with a target diameter of 16 inches. A pizza is acceptable if its diameter is within $3 \cdot 2^{-2}$ in. of the target diameter. Let d represent the diameter of a pizza. Write an inequality for the range of acceptable large pizza diameters in inches.

33. **Open-ended** Choose a fraction to use as a value for the variable c. Find the values of c^{-1}, c^{-3}, and c^3.