Name _____ Class _____ Date _____

Reteaching 7-1

Zero and Negative Exponents

OBJECTIVE: Evaluating and simplifying expressions in which zero and negative numbers are used as exponents

MATERIALS: None

- When a nonzero number a has a zero exponent, then $a^0 = 1$.
- For any nonzero number a and any integer n, $a^{-n} = \frac{1}{a^n}$.

Example

Write each expression as an integer or a simple fraction.

a. 2.7^0

1 ← **Rewrite, using the property of zero as an exponent.**

b. 5^{-2}

$\frac{1}{5^2}$ ← **Rewrite as a fraction, using the property of negative exponents.**

$\frac{1}{25}$ ← **Simplify.**

Exercises

Write each expression as an integer, a simple fraction, or an expression that contains only positive exponents. Simplify.

1. 10^{-3} **2.** 1.67^0 **3.** 5^{-4}

4. 7^{-3} **5.** $\left(-\frac{3}{2}\right)^{-2}$ **6.** $(5x)^{-4}$

7. 4^{-1} **8.** 376.5^0 **9.** b^{-5}

Write each expression so that it contains only positive exponents.

10. $\left(\frac{2}{7}\right)^{-4}$ **11.** $3ab^0$ **12.** -4^{-3}

13. $a^{-3}b^{-4}$ **14.** $\frac{3x^{-2}}{y}$ **15.** $12xy^{-3}$

16. $\frac{8}{4^{-2}}$ **17.** $\frac{(3x)^{-1}}{4}$ **18.** $\frac{(2x)^{-2}}{3y^{-1}}$

19. $\frac{(4x)^{-2}}{2^{-3}}$ **20.** $\frac{(3a)^2b^{-3}}{b^{-2}}$ **21.** $\frac{4^0 5^3}{2^{-3}}$

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