

Algebra I
 Chapter 9 Review Warm-Up
 Properties of Exponents

NAME: _____
 DATE: _____ HOUR: _____

Complete the following properties.

$$\frac{b^0 =}{b^{-n} =}$$

$$\frac{b^m \cdot b^n =}{\frac{b^m}{b^n} =}$$

$$\frac{(b^m)^n =}{(ab)^n =}{\left(\frac{a}{b}\right)^n =}$$

In 1-6, choose the best answer.

1. $n^2 n^3 =$ _____

- (a) n^6 (b) n^5 (c) n^9 (d) n^1

2. $(n^2)^3 =$ _____

- (a) n^6 (b) n^5 (c) n^9 (d) n^1

3. $\frac{x^6}{x^2} =$ _____

- (a) x^8 (b) x^{12} (c) x^3 (d) x^4

4. $\frac{x^a}{x^b} =$ _____

- (a) x^{b-a} (b) x^{a-b} (c) $x^{\frac{a}{b}}$ (d) $x^{\frac{b}{a}}$

5. $\frac{x^6}{x^3} =$ _____

- (a) x^2 (b) x^3 (c) 2 (d) 1

6. $\left(\frac{m}{n}\right)^2 =$ _____

- (a) $\frac{2m}{n}$ (b) $\frac{m}{n}$ (c) $\frac{2m}{2n}$ (d) $\frac{m^2}{n^2}$

over

Simplify each expression. NO NEGATIVE EXPONENTS.

7. $(-3x^5y^2)^3$

8. $\frac{4^5 a b}{4^2 a^2 b^4}$

9. $5a^{-6}b^2$

10. $(-5ab^2)^{-3}$

11. $\frac{(x^7)(x^8)(x)}{x^{25}}$

12. $(a^2b)^3(ab^2)^4$

For 13-18, write each expression in radical form $(\sqrt[k]{x})^a$. Evaluate, if possible, showing steps.

13. $x^{2/3}$

14. $81^{7/4}$

15. $w^{3/4}$

16. $y^{3/5}$

17. $16^{1/4}$

18. $d^{5/7}$

For 19-24, write each expression in rational exponent form $x^{a/b}$. Evaluate, if possible, showing steps.

19. $(\sqrt[3]{125})^4$

20. $(\sqrt[4]{10000})^5$

21. $(\sqrt[5]{a})^2$

22. $(\sqrt[4]{1})^8$

23. $(\sqrt[5]{b})^7$

24. $(\sqrt[3]{27})^2$