

Name: _____

Period: _____

Algebra 1

Chapter 7: Exponents and Exponential Functions

Targets	Learning Targets	Got it	Ok	No way
T 7-1	I can multiply monomials using the properties of exponents and simplify expressions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T 7-2	I can divide monomials using the properties of exponents and simplify expressions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T 7-3	I can use all properties of exponents to solve exponents.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T 7-4	I can evaluate, rewrite and solve expressions involving rational exponents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Target	Lesson/Activity	Homework Assignment o = only do odd problems	Turned In?
T 7-1	Multiplication Property of Exponents	T 7-1 Multiplication Property Worksheet	
T 7-2	Division Property of Exponents	T 7-2 Division Property Worksheet	
T 7-3	Zero Property of Exponents	T 7-3 Zero and Negative Property Worksheet	
	Negative Property of Exponents		
T 7-4	Rational Exponents	T 7-4 Rational Exponent Worksheet	
	All Exponent Properties	Stations – Participation in all stations earns a stamp.	
	Chapter 7 Review	Ch.7 ART	
	Chapter 7 Test	You must have 4 stamps to be eligible for retakes	

Retake Problems for Ch. 6

T 6-1	6.1 pg. 339 #25-37all
T 6-2	6.2 pg. 347 #1-13all, 23, 25 T6-2 and T6-3 Retake Worksheet
T 6-3	6.4 pg. 360 #7-20all T6-2 and T6-3 Retake Worksheet

Exponent Rules:

Rule Name	Definition	Example

T 7-1 Multiplication Properties of Exponents

(Multiplication Rule and Power to Power Rule)

Simplify the following.

1. $(a^2)^3$	2. $(x^4)^2$
3. $(x^3)^2$	4. $(b^2)^5$
5. $(u^7)^{10}$	6. $(z^8)^5$
7. $(2x^2)^3$	8. $(3y^3)^3$
9. $(-3x^2)^2$	10. $(-5y^3)^3$
11. $\left(\frac{1}{2}x^4\right)^2$	12. $\left(\frac{1}{3}y^3\right)^2$
13. $2(3a^2)^3$	14. $4(-2x^3)^3$
15. $\frac{1}{2}(4x^3)^2$	16. $\frac{1}{3}(3t^2)^3$
17. $(-x^2)^3$	18. $(-2y^3)^2$
19. $(-3x^3)^2$	20. $(-5y^2)^3$
21. $(a^m)^n$	22. $(b^x)^y$
23. $(3b^s)^3$	24. $(5x^p)^2$
25. $(x^5)^2(2x^3)^2$	26. $(a^7)^3(a^3)^2$
27. $(x^2)^8(x^3)^4$	28. $(y^3)^1(y^2)^4$
29. $(2x^m)^3(x^2)^m$	30. $(3y^r)^2(y^3)^r$

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Simplify the following.

1. $x^5 \cdot x$	2. $y^3 \cdot y^2$
3. $5x^3 \cdot x^4$	4. $4y^2 \cdot y^5$
5. $2x^3 \cdot 7x^3$	6. $9y^2 \cdot 5y^2$
7. $3x^5(-7x)^2$	8. $5y^4(-2y)^5$
9. $(-4x)^2(-7x)^2$	10. $(-3y)^3(-7y)^2$
11. $(6a^3b^3)(-4a^4b)$	12. $(-9r^3s)(5r^5s)$
13. $c^3(c^2)(c^4)$	14. $z^3(z^2)(z^5)$
15. $m(-m^2)(-m^3)$	16. $t^4(-t^2)(t^3)$
17. $17a^3b^2(-2a^4)(-3b)$	18. $-2s^3t^2(5s^4)(7t)$
19. $4xy(-3x^3y)(2xy^4)$	20. $3m^3(2m^2n^2)(-3n)$
21. $3r^4(2s)(-5r^2s^2)$	22. $5c^3(2c^3d^2)(-11d)$
23. $7^3(7^3)(7^2)$	24. $2^4(2^5)(2^2)$
25. $c^3(c^r)$	26. $d^4(d^s)$
27. $a(a^3)(a^x)$	28. $r^y(r)(r^3)$
29. $5x^a(-2x^3)(-3x)$	30. $12d^r(-2d)(-7d^2)$

Exponents and Division T7-2

Simplify. Your answer should contain only positive exponents.

1) $\frac{5^4}{5}$

2) $\frac{3}{3^3}$

3) $\frac{2^2}{2^3}$

4) $\frac{2^4}{2^2}$

5) $\frac{3r^3}{2r}$

6) $\frac{7k^2}{4k^3}$

7) $\frac{10p^4}{6p}$

8) $\frac{3b}{10b^3}$

9) $\frac{8m^3}{10m^3}$

10) $\frac{7n^3}{2n^5}$

$$11) \frac{2n^2}{n}$$

$$12) \frac{8x^3}{10x^5}$$

$$13) \frac{12x^3}{9y^8}$$

$$14) \frac{14x^4y^7}{6x^5y^4}$$

$$15) \frac{11u^4}{17u^7v^9}$$

$$16) \frac{4y^4}{14yx^8}$$

$$17) \frac{12yx^4}{10yx^8}$$

$$18) \frac{18x^8y^8}{10x^3}$$

$$19) \frac{5n^8}{20n^8}$$

$$20) \frac{16yx^4}{9x^8y^2}$$

More Properties of Exponents T7-3

Simplify. Your answer should contain only positive exponents.

1) $(x^{-2}x^{-3})^4$

2) $(x^4)^{-3} \cdot 2x^4$

3) $(n^3)^3 \cdot 2n^{-1}$

4) $(2v)^2 \cdot 2v^2$

5) $\frac{2x^2y^4 \cdot 4x^2y^4 \cdot 3x}{3x^{-3}y^2}$

6) $\frac{2y^3 \cdot 3xy^3}{3x^2y^4}$

7) $\frac{x^3y^3 \cdot x^3}{4x^2}$

8) $\frac{3x^2y^2}{2x^{-1} \cdot 4yx^2}$

9) $\frac{x}{(2x^0)^2}$

10) $\frac{2m^{-4}}{(2m^{-4})^3}$

11) $\frac{(2m^2)^{-1}}{m^2}$

12) $\frac{2x^3}{(x^{-1})^3}$

13) $(a^{-3}b^{-3})^0$

14) $x^4 y^3 \cdot (2y^2)^0$

15) $ba^4 \cdot (2ba^4)^{-3}$

16) $(2x^0 y^2)^{-3} \cdot 2yx^3$

17) $\frac{2k^3 \cdot k^2}{k^{-3}}$

18) $\frac{(x^{-3})^4 x^4}{2x^{-3}}$

19) $\frac{(2x)^{-4}}{x^{-1} \cdot x}$

20) $\frac{(2x^3 z^2)^3}{x^3 y^4 z^2 \cdot x^{-4} z^3}$

21) $\frac{(2pm^{-1}q^0)^{-4} \cdot 2m^{-1}p^3}{2pq^2}$

22) $\frac{(2hj^2k^{-2} \cdot h^4 j^{-1} k^4)^0}{2h^{-3} j^{-4} k^{-2}}$

T 7-4 Skills Practice

Rational Exponents

Write each expression in radical form, or write each radical in exponential form.

1. $(8x)^{\frac{3}{2}}$

2. $6z^{\frac{1}{2}}$

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

4. $\sqrt{11}$

5. $19x^{\frac{1}{2}}$

6. $\sqrt[5]{34}$

7. $\sqrt{27g}$

8. $33gh^{\frac{1}{2}}$

9. $\sqrt{13abc}$

Simplify.

10. $\left(\frac{1}{16}\right)^{\frac{1}{4}}$

11. $\sqrt[5]{3125}$

12. $729^{\frac{1}{3}}$

13. $\left(\frac{1}{32}\right)^{\frac{1}{5}}$

14. $\sqrt[6]{4096}$

15. $1024^{\frac{2}{5}}$

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16. $\left(\frac{16}{625}\right)^{\frac{3}{4}}$

17. $\sqrt[6]{15,625}$

18. $117,649^{\frac{1}{6}}$

Solve each equation.

19. $2^x = 512$

20. $3^x = 6561$

21. $6^x = 46,656$

22. $5^x = 125$

23. $3^{x-3} = 243$

24. $4^{x-1} = 1024$

25. $6^{x-1} = 1296$

26. $2^{4x+3} = 2048$

27. $3^{3x+3} = 6561$