

Write your questions
and thoughts here!

Algebra II

7.1 - Exponent Properties

Recall: Exponent Rules...

	Property Name	What this means:	Example
"Product Rule!"	Product of Powers	$a^m \cdot a^n = a^{m+n}$	
"Quotient Rule!"	Quotient of Powers	$\frac{a^m}{a^n} = a^{m-n} \quad (a \neq 0)$	
"Power Rule!"	Power of a Power	$(a^m)^n = a^{mn}$	
	Power of a Product	$(ab)^n = a^n b^n$	
	Power of Quotient	$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$	
"Negative Exponent Rule"	Negative Exponents	$a^{-n} = \frac{1}{a^n}$	
"Zero Exponent Rule"	Zero Exponents	$a^0 = 1 \quad (a \neq 0)$	

Algebra I
Section 9.1 - 9.3



Examples: Simplify. Use only positive exponents.

1. $4^5 \cdot 4^{-3}$

2. -3^2

3. $(-3)^2$

4. $(-2x)^2$

5. $-(1x)^6$

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

7. $\frac{12d^5d^2f}{3f^{-1}}$

8. $6g^5 \cdot 4g^1$

9. $(5xy^{-4}z^0)^3$



$$10. \frac{5v^6}{15v^{-2}}$$

$$11. (4x^3y^5x^2y^4)^2$$

$$12. \left(\frac{28y^5}{8y^{-3}}\right)^3$$

$$13. \frac{26x^{-1}y^{-3}}{4y^{-2}x}$$

$$14. \left(\frac{3a^{-3}b^5}{4a^3b^{-4}}\right)^2$$

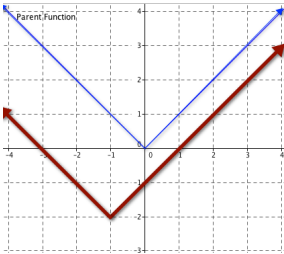
$$15. \left[\left(\sum_{t=3}^{23} \frac{y\pi x^{-3}ab^5}{t^3b^{4t}}\right)^2\right]^0$$

$$16. \left(\frac{2xy^2 \cdot 3x^2y}{(4xy^2)^2}\right)^3$$

17.

Now summarize what you have learned!

What I really thought about Mr. Bean's hamburger dance was....

Algebra Skillz		
GRAPH	SIMPLIFY	SOLVE
<p>Below, the graph of $f(x) = x + 1 - 2$ is sketched in bold. Its parent function $f(x) = x$ is represented by the thin curve.</p> <p>1. Describe the translation of the parent graph.</p> <p>2. How does the translation relate to the equation?</p> 	<p>3. $\sqrt{98} + \sqrt{18}$</p> <p>4. $(3x^2 - 4x) - (8x - 2)$</p>	<p>5. Solve: $(x - 1)(2x + 7) = 0$</p> <p>6. Factor and solve. $x^2 - 12x + 35 = 0$</p>

Simplify completely. Your answers should have only positive exponents.

1. $(4^4)^2$

2. $(2x^4)^3$

3. $(x^{-3}y^4)^2$

4. $\left(\frac{f}{f^6}\right)^2$

5. $\frac{4x^3}{6x^5}$

6. $\frac{p}{4p^6}$

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

8. $12^3 \cdot 12^4$

9. $3x^2y^3 \cdot 2x^3y^2$

10. $(-3x^2)^4$

11. $(-2x^2)^3$

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

13. $\left(\frac{7}{7^3}\right)^{-3}$

14. $-x^2y^{-3} \cdot x^{-2}y^2$

15. $\frac{-3w^3}{6w^5}$

16. $1 \cdot 8^{-1}$

17. $\frac{12a^{-2}b^4}{2a^4b^{-3}}$

18. $\left(\frac{2^4}{2^4 \cdot 2^3}\right)^2$

19. $\left(\frac{2 \cdot 2^2}{2^{-2} \cdot 2^2}\right)^2$

20. $\left(\frac{2m^2n^3}{(n^8)^2m^4n^7}\right)^0$

21. $\left(\frac{2yx^3}{(2x^2y^3)^3 \cdot 2(x^8)^2}\right)^{-2}$

22. $\left(\frac{3a^2b^3}{9(a^8)^{-2}b^4a^7}\right)^2$

23. $(-2x^4y^5z)^{-1}$

24. $\left(\frac{(3m^2)^2(mn)^3}{(n^8)^2(9m^4n^7)}\right)^2$

7.1 Application

Simplify. Use only positive exponents.

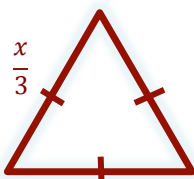
1. $2x^5 \cdot 3x^1$

2. -7^{-2}

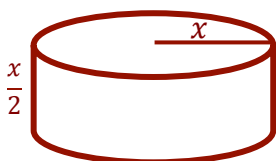
3. $\frac{20x^2y^4}{12x^{-1}y^5}$

4. Write an expression for the figure's area or volume in terms of x .

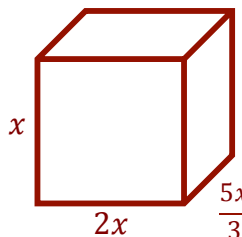
a. $A = \frac{\sqrt{3}}{4}s^2$



b. $V = \pi r^2 h$



c. $V = lwh$



ALGEBRA REVIEW: Multiply (double distribute!)

6. $(x + 7)^2$

7. $(x - 4)(2x^2 - 5x - 7)$

8. $(3x - 4)^3$

9. $(-3x - 2y)^3$

SAT Review!

MUTIPLE CHOICE

If $14^{-14} = (14)^{2k}$, then the value of $k = ??$

- (A) Cannot be determined
- (B) 14
- (C) -14
- (D) 7
- (E) -7

DOUBLE MULTIPLE CHOICE ?!?!?

If $0 < a < 1$, which of the following gives the correct ordering of \sqrt{a} , a , and a^2 ?

- (A) $a < \sqrt{a} < a^2$
- (B) $a < a^2 < \sqrt{a}$
- (C) $\sqrt{a} < a < a^2$
- (D) $\sqrt{a} < a^2 < a$
- (E) $a^2 < a < \sqrt{a}$