

# Chapter 7 Student Success Sheet (SSS)

## Laws of Exponents

1

Olathe East High School – Intermediate Algebra

Name: \_\_\_\_\_  
Hour: \_\_\_\_\_

**Reminders:**

- Homework is completed in **homework notebook only**.
- All pages in homework notebook should be labeled accordingly:  
Unit \_\_\_\_\_ Concept \_\_\_\_\_ - (title of assignment)

**Examples:**

Unit 1 Concept 1 – Practice Quiz  
Unit 1 Concept 1-4 – Practice Test

### Need Help? Support is available!

- [www.mhollan.weebly.com](http://www.mhollan.weebly.com)
- [www.srushingoe.weebly.com](http://www.srushingoe.weebly.com)

“There are no secrets to success. It is the result of preparation, hard work, and learning from failure.”

Colin Powell

Concept #	What we will be learning...	Mandatory Practice
1	Product property	Practice Quiz 1
2	Power property	Practice Quiz 2
3	Zero exponent property	Practice Quiz 3
4	Quotient property	Practice Quiz 4
5	Negative exponent property	Practice Quiz 8

**Coefficient – Base – Exponent!**

**Numerator**

C \_\_\_\_\_ - B \_\_\_\_\_ - E \_\_\_\_\_

**Denominator**

If there isn't an exponent, then the exponent is \_\_\_\_\_!

Exponents must have the \_\_\_\_\_  
\_\_\_\_\_ if you are going to simplify  
them in any of the ways below!

#1	Product property
<p>1. B _____ all C _____</p> <p>2. H _____ the B _____ with its E _____ (different bases are different colors!)</p> <p>3. M _____ the C _____</p> <p>4. A _____ the E _____, keeping the bases the S _____</p>	
<p>1) <math>v^2 \cdot -v^4</math></p> <p>3) <math>-2a^4 \cdot -a^4</math></p> <p>5) <math>4y^4 \cdot -2y^4</math></p> <p>7) <math>2xy \cdot -3y</math></p> <p>9) <math>2x^2y^2z^2 \cdot -3z^3 \cdot -4z^4</math></p> <p>11) <math>3b^3c^2 \cdot -4ba^4c^3</math></p>	<p>2) <math>4x^3 \cdot -2x^3</math></p> <p>4) <math>2n^2 \cdot -2n \cdot -n^2</math></p> <p>6) <math>3m^4n^4 \cdot 3n^2</math></p> <p>8) <math>u^4v^2 \cdot -3v^3</math></p> <p>10) <math>-2jh^4k^4 \cdot -3hj^4</math></p> <p>12) <math>2h^2j^3k^2 \cdot -4h^2j^3k^4</math></p>

#2	Power property	
<p>1. D _____ the P _____ to all parts in the P _____</p> <p>a. C _____ receive it as a regular E _____</p> <p>b. B _____ with E _____ receive it and M _____ the exponents together!</p>		
<p>13) <math>(2m)^2</math></p> <p>15) <math>(4x^4)^2</math></p> <p>17) <math>(3x^2)^2</math></p> <p>19) <math>(3m^3n^2)^2</math></p> <p>21) <math>(4bc^3)^3</math></p> <p>23) <math>(4y^2z^4)^2</math></p>	<p>14) <math>(4m)^2</math></p> <p>16) <math>(3n^2)^4</math></p> <p>18) <math>(3mn)^3</math></p> <p>20) <math>(4x^2)^3</math></p> <p>22) <math>(4kj^3)^2</math></p> <p>24) <math>(4x^3y^3z^3)^2</math></p>	

#3	Zero exponent property	
1. Any N _____ or V _____ raised to the power of Z _____ is equal to _____!		
25) $-4k \cdot -2k^0$	26) $-4n^2 \cdot n^0$	
27) $x^2 \cdot 4x^0$	28) $-4r^0 \cdot -3r^4$	
29) $-2xy^0 \cdot -3y^4$	30) $u^3 v^4 \cdot -3vu^0$	
31) $x^0 y^4 \cdot -3x^3 y^2$	32) $4x \cdot -x^4 \cdot -2x^0 y^4$	
33) $-j^3 k^2 \cdot -kh^0 j^4$	34) $-ba^0 c^3 \cdot -ca^2 b^3$	
35) $-3hj^3 k^3 \cdot 2h^4 j^0 k^3$	36) $2m^4 p^3 q^4 \cdot 4mp^0 q^4$	

#4	Quotient property
<p>1. B _____ all C _____</p> <p>2. H _____ the B _____ with its E _____ (different bases are different colors!)</p> <p>3. D _____ or R _____ the C _____</p> <p>4. S _____ the E _____ from B _____ to S _____, putting your answer where the B _____ exponent was &amp; keeping the bases the S _____</p> <p>5. You should never have an N _____ E _____</p>	
<p>37) <math>-\frac{2n^2}{3n^2}</math></p> <p>39) <math>\frac{3p^4}{-3p}</math></p> <p>41) <math>\frac{2a^3b^4}{-4ba^2}</math></p> <p>43) <math>\frac{4x^2y^4}{-x^0y^0}</math></p> <p>45) <math>\frac{-3x^3z^2}{-2x^2z^2}</math></p> <p>47) <math>\frac{p^2q^2}{4m^4p^2q}</math></p>	<p>38) <math>\frac{4x^2}{-2x}</math></p> <p>40) <math>\frac{k^0}{-3k}</math></p> <p>42) <math>-\frac{2x^3y^4}{2y^3}</math></p> <p>44) <math>\frac{2b}{a^3b^0}</math></p> <p>46) <math>\frac{-2jkh^4}{-4h^3j^2k^4}</math></p> <p>48) <math>-\frac{4n^3p^3}{m^4n^2p^3}</math></p>

#5	Negative exponent property	
<p>1. B _____ all C _____</p> <p>2. H _____ the B _____ with its E _____ (different bases are different colors!)</p> <p>3. C _____ the base with the N _____ exponent!</p> <p style="padding-left: 40px;">a. Take that part and C _____ the L _____, C _____ the S _____!</p> <p style="padding-left: 80px;">i. If it is in the D _____, move it to the N _____ and make it P _____</p> <p style="padding-left: 80px;">ii. If it is in the N _____, move it to the D _____ and make it P _____</p> <p>4. Finish simplifying according to your other properties.</p>		
<p>49) <math>-2x^{-3} \cdot x^0</math></p> <p>51) <math>\frac{-v^2}{-2v^{-3}}</math></p> <p>53) <math>4y^4 \cdot -4yx^3 \cdot -x^3y^{-1}</math></p> <p>55) <math>\frac{x^4y^2}{-2x^4}</math></p> <p>57) <math>-3mn^4p^{-2} \cdot m^0n^0p^4</math></p> <p>59) <math>\frac{-pm^0q^4}{-3m^3p^2q^{-3}}</math></p>	<p>50) <math>a^2 \cdot -2a \cdot 2a^{-3}</math></p> <p>52) <math>\frac{2a^2}{3a^{-1}}</math></p> <p>54) <math>-v^{-1} \cdot 2v^0</math></p> <p>56) <math>\frac{2mn^{-2}}{-mn^4}</math></p> <p>58) <math>-2x^{-2}y^2z^0 \cdot x^2y^4z^2</math></p> <p>60) <math>\frac{4x}{4x^4y^2z^{-1}}</math></p>	

**Challenge #1**

$$61) \frac{(x^{-3})^3}{2x \cdot 2x^{-4}}$$

$$63) \frac{(2n^4)^4}{2n^{-2} \cdot 2n^0}$$

$$65) \frac{k \cdot 2k^0}{(k^3)^4}$$

$$62) \frac{2v^2 \cdot v^4}{(v^2)^{-3}}$$

$$64) \frac{a^{-1} \cdot 2a^{-3}}{(a^3)^4}$$

$$66) \left( \frac{2x^4}{x \cdot 2x^0} \right)^4$$

**Challenge #2**

$$67) \frac{(2v^0)^2 \cdot 2vu^4}{u^{-3}v^{-2}}$$

$$69) \frac{(2y^{-1})^4}{y^{-2}y^0}$$

$$71) \frac{(2y^{-3} \cdot x^{-3}y^0)^0}{2x^4y^3}$$

$$68) \frac{(2xy)^4}{2x^4y^3 \cdot x^4y^4}$$

$$70) \frac{2vu^3}{(2u^2v^3)^{-2} \cdot 2uv^{-3}}$$

$$72) \frac{2ab^4 \cdot 2a^3b^{-2}}{(2a^4b^2)^{-4}}$$

**Challenge #3**

$$73) \frac{(z^4)^3 \cdot y^3 z^{-2}}{x^{-3} y^4 z^3}$$

$$75) \frac{(2y^2 z^2)^3}{2x^3 y^4 z^4 \cdot (2x^2 y^0)^{-2}}$$

$$77) \frac{(b^{-4} c^{-2})^{-2}}{2a^4 b^3 \cdot a^4 b^3 c^3}$$

$$74) \frac{q^0 r^4 \cdot 2rp^2}{(2p^2 q^0)^{-4}}$$

$$76) \frac{yx^3 z^3 \cdot 2x^0 y^4 z^4 \cdot (x^{-1} y^3 z^{-3})^4}{2xz^4}$$

$$78) \frac{h^3 j^4 k^{-2} \cdot (2h^2 k^4)^3 (hj^4 k^{-1})^2}{2h^2 j^{-4} k^0}$$