**Product Rule** **Station 1**

When multiplying the same base, you add the exponents.

Examples: x4 ● x 5 = x9

 ( x2y3) (xy5) = x 3y8 \* any variable without an exponent, has 1 an exponent

 (-2x3yz4)( 5 x3y) = -10x6y2z4

Simplify.

1a. (a4c2)( 2a3b2c4) 1b. (5xy)( 3x2y)

1c. (q2)( 2q4) 1d. (9w2x8)( w6x4)

1e. (y6z9)( 6 y4z2) 1f. (b8c6d5)( 7 b6c2d)

1g. (2x3)( 5 x10) 1h. (-10z4)( 5 z5)

Quotient Rule Station 2

When dividing the same base, you subtract exponents.

Examples: 2x4y8z = 1x3y7z \* Reduce the fraction, if you cannot divide

 4xy 2

 16x4y = 8x

 2 x3y

Simplify.

2a. g8h2m 2b. m6r5p3

 hg7 m5r2p3

2c. a6b4c10 2d. t5u4

 a3b2c t2u

2e. r4t7v2 2f. m4p3

 z5x2 m2p

2g. -12u12 2h. 13 r7

 3u2 39 r4

Power to a Power Rule Station 3

When you multiply a power to a power, you just multiply the exponents.

Examples: (2x2y4)3 = 21●3x2●3y4●3= 23x6y12 = 8 x6y12

 (s3 t2)6 = s18t12

Simplify.

3a. (3g8h2m )2 3b. ( m6r5p3 )

3c. ( -2a6b4c10) 3 3d. (3 t5u4)2

3e. ( 2r4t7v2 ) 4 3f. (3m4p3 )4

3g. (-12u12 )2 3h. (13 r7 ) 2

Negative Exponent Rule Station 4

When you have negative exponents in the numerator, they get moved to the denominator and become positive exponents. Negative exponents in the denominator get moved to the numerator and become positive exponents. Only move the negative exponents.



2 = 2x3

x-3

Simplify.

4a. g-2h-2m 4b. m-6r-5p-4

4c. 1 4d. 2

 a3b-4c t-3u

4e. 3 4f. m-3p-6

 z-6x2

4g. -1u-3 4h. 12 r-5

Zero Exponent Rule Station 5

Anything raised to the power of zero is 1.

Examples:



Simplify.

5a. (3g8h2m )0 5b. ( m6r5p3 )0

 ( 2p )

5c. ( -2a6b4c10)0 5d. (3 t5u4)0

5e. ( 2r4t7v2 ) 0 5f. (3m4p3 )0

5g. (-12u12 )0 5h. (13 r7 ) 0