

Name: _____

No work No credit

Date: _____

CW 3-3: Algebra 1 - Sections 8-1 to 8-3

50 points

1. Complete each rule:

a. $x^a \cdot x^b =$ x^{a+b}

If you multiply the same base,
then you keep the base and ADD the exponents.

b. $(x^a)^b =$ x^{ab}

If a base is raised to an Exponent which, in turn,
is raised to an Exponent then you
keep the base and multiply the exponents.

c. $\frac{x^a}{x^b} =$ x^{a-b}

If you Divide the same base,
then you keep the base and subtract the exponents

d. $x^0 =$ 1

Any base to the zero power equals one

e. $x^{-a} =$ $\frac{1}{x^a}$

If a base has a Negative exponent in the numerator
then it will have a Positive exponent in the denominator.

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CW 3-3: Algebra 1 - Sections 8-1 to 8-3 - Review For Quiz 3-2

50 points

2. Simplify. Answers must have positive exponents only.

a. $(-2a^5b^3)(7a^{-2}b^4c^9)$

$$\boxed{-14a^3b^7c^9}$$

(1. Product Rule)

b. $(3m^5n^7)^4$

$$(3)^4 (m^5)^4 (n^7)^4$$

$$\boxed{81m^{20}n^{28}}$$

(2. Power to Power)

c. $\frac{8k^9g^4}{14k^4g^{11}}$

$$\frac{\boxed{8} \boxed{k^9} \boxed{g^4}}{\boxed{14} \boxed{k^4} \boxed{g^{11}}}$$

$$\boxed{\frac{4k^5}{7g^7}}$$

(3. Quotient Rule)

d. $\frac{(4c^2d^5)^3}{8c^{14}d^{11}}$

$$\frac{(4)^3 (c^2)^3 (d^5)^3}{8 c^{14} d^{11}}$$

(Power to Power)

$$\frac{64 c^6 d^{15}}{8 c^{14} d^{11}}$$

(Quotient)

$$\boxed{\frac{8d^4}{c^8}}$$

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3. Simplify. Answers must have positive exponents only:

a. $\frac{24g^5h^{-3}k^0}{10g^{-4}h^5k^{-2}}$

(negative Exponent) →

(Quotient) →

$$\frac{24g^5h^4k^2}{10h^5h^3}$$

$$\frac{12g^9k^2}{5h^8}$$

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

(Quotient)
(negative)

(Power to Power)

$$\left(\frac{3y^3}{4x^8}\right)^2$$

$$\frac{9y^6}{16x^{16}}$$

c. $(-2a^5b^3)^3 (7a^{-2}b^4c^9)^2$

(Power to Power)

(Product)

$$(-8a^{15}b^9)(49a^{-4}b^8c^{18})$$

$$-392a^{11}b^{17}c^{18}$$

d. $(2a^5b^{-3})^4 (3a^{-7}b^5c^{-3})$

(Power to Power)

(Product)

(negative Exponent)

$$(16a^{20}b^{-12})(3a^{-7}b^5c^{-3})$$

$$48a^{13}b^{-7}c^{-3}$$

$$\frac{48a^{13}}{b^7c^3}$$