

Name: Answer

Date: _____

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Math 306

Exponents

1) Simplify the following using the laws of exponents.

a) $a^4 \cdot a^3 = a^7$

b) $p^3 \div p^2 = p$

c) $3x \cdot 7y = 21xy$

d) $q^7 \div q^9 = q^{-2}$ OR $\frac{1}{q^2}$

e) $4x^2 \cdot 3x^7 = 12x^9$

f) $3u \div u^8 = 3u^{-7}$ OR $\frac{3}{u^7}$

g) $5x^2 \div x^3 = 5x^{-1}$ OR $\frac{5}{x}$

h) $9y^7 \div 3y^3 = 3y^4$

i) $3y \cdot 3y^3 = 9y^4$

j) $10x^5 \div 2 = 5x^5$

k) $4x^2 \cdot 1x = 4x^3$

l) $7z^2 \div z^3 = 7z^{-1}$

m) $x \cdot x^7 = x^8$

n) $r^{18} \div r = r^{17}$

o) $n^2 \div n^3 = n^{-1}$ OR $\frac{1}{n}$

p) $s^{10} \cdot s^8 = s^{18}$

q) $\frac{15z^4}{5z^3} = 3z$

r) $\frac{4x^2}{2x} = 2x$

2) True OR False

a) $7^5 - 7^3 = 7^2$

False

b) $x^6 \div x^2 = x^3$

False

c) $9^{-6} \div 9^{-3} = 9^{-3}$

True

d) $2^7 \div 2^9 = 2^{-2}$

True

3) Find the missing term.

a) $8^5 \times \underline{8^{-2}} = 8^3$

b) $7^8 \div \underline{7^4} = 7^4$

c) $10^4 \div 10^{-3} = 10^7$

d) $10^{-8} \times \underline{10^{20}} = 10^{12}$

e) $\underline{7} \times 7^3 = 7^4$

f) $\underline{2^{-4}} \times 2^7 = 2^3$

4) Simplify using the laws of exponents (positive exponents only)

a) $\frac{14y^2z^5}{7yz^6} = \frac{2y}{z}$

b) $\frac{16x^3y^2z^{16}}{8y^5z^3} = \frac{2x^3z^{13}}{y^3}$

c) $\frac{9y}{18y^3} = \frac{1}{2y^2}$

d) $\frac{16x^2y}{4xz} = \frac{4xy}{z}$