

AA PREP—OPERATIONS WITH EXPONENTS—WORKSHEET #1

1. **BASICS.** Simplify each expression, assuming that no variable equals zero. Write answers with positive exponents only!

a) $x^6 \cdot x^2$	b) $(2x)^0$	c) $\frac{x^9}{x^3}$	d) $(x^6)^2$
e) $\frac{x^{-9}}{x^3}$	f) $x^6 x^6 x^6$	g) $(x^2 y^3)^4$	h) $2x^0$
i) $(2x^4)(3x^5)$	j) $\frac{x^{-9}}{x^{-3}}$	k) $\left(\frac{x^4}{x}\right)^{-2}$	l) $2x(3x^4)^2$

2. MORE COMPLICATED.

Simplify each expression, assuming that no variable equals zero. Write answers with positive exponents only!

a) $-4x^5 y^6 \cdot 2x^{12} y^{13}$	b) $(-4x^5 y^6)^3$
c) $(-4xy^{11})(-2x^3 y^5)$	d) $(-2x^6 y^{10})^2 (-3xy^4)^3$
e) $\frac{12xy^{-7}}{18x^{-3}y^{-5}}$	f) $\frac{5^{-3}x^{-8}y^{-4}}{25x^{-1}y^{-10}}$
g) $\left(\frac{9^{\frac{1}{2}}x^{-2}}{-3(2x^6)^3}\right)^{-2}$	h) $\left(\frac{4x^{-5}}{2(3x^4)^2}\right)^{-2} \cdot (2x^{-3}y^{-7})^{-3}$