

16.1 – Laws of Exponents I

$a^m \cdot a^n = a^{m+n}$	$a^0 = 1, a \neq 0$		
$(ab)^m = a^m \cdot b^m$	$(a^m)^n = a^{m \cdot n}$		
P Power to a power	M Multiply	A Add	N Nothing

Evaluate the following.

1. $(4)^2 \cdot (4)^3 =$ $4^{2+3} = 4^5 = 1024$	2. $(3^2)^3 =$ $3^{2 \cdot 3} = 3^6 = 729$
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Simplify the following.

3. $(3^2 x^2 y^2)^2 =$ $3^{2 \cdot 2} x^{2 \cdot 2} y^{2 \cdot 2} = 3^4 x^4 y^2 = 81x^4y^2$	4. $x^5 \cdot x^3 =$ $x^{5+3} = x^8$
5. $(2r^3 s^5)^0 = 1$	6. $4^y \cdot 4^6 =$ 4^{y+6}

Use the laws of exponents to solve the following equation.

7. $3^x \cdot 3^2 = 3^8$ $3^{x+2} = 3^8$	$x+2=8$ (Set exponents equal!) $x=6$
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