

MasterMath

Exponential Properties Involving Products

Name _____
Date _____

1. Simplify these expressions



Expression	Simplified
$g^4 * g^3$	g^7
$(a^2)^3$	a^6
$a^2 * a^3$	a^5
$x^3 * (x^4)^2$	x^{11}
$(ab)^2 * a$	a^3b^2
$(x^3y^2)^2$	x^6y^4
$(2x)^2 * 2x$	$8x^3$
$(3x^2y^4)(2x^2)^4$	$48x^{10}y^4$
$s^2 * (2s^2)^4$	$16s^{10}$

2. Which expression is equivalent to $(-9)^6$?

b

- a) $(-9)^2(-9)^3$
- b) $(-9)(-9)^5$
- c) $\{(-9)^4\}^2$
- d) $[(-9)^3]^3$

3. Which expression is equal to $49y^{12}$?

d

- a) $(49y^2)^6$
- b) $(7y)^{12}$
- c) $7y^3 * 7y^4$
- d) $(7y^5)^2 * y^2$

4. Find the missing exponent:

Expression	Missing Exponent
$(x^4)^? = x^{20}$	5
$(3a^3)^? * 2a^3 = 18a^9$	2
$(2z^7)^3 = 8z^{15}$	5

5. Simplify the expression

Expression	Simplified
$(-3c^3d)^2(12c^3d^2)^2$	$1296c^{12}d^6$
$(-2c^2d)^2(11c^3d^4)^2$	$484c^{10}d^{10}$
$-(-2x^2y^4)^2(xy^3)^3$	$-4x^7y^{17}$

6.

You own a microscope with an objective lens and an eyepiece. The objective lens can magnify an object 10^3 times, and the eyepiece can further magnify an object 10^2 times. The total magnification of the microscope is the power of the objective lens times the power of the eyepiece. What is the maximum magnification on your microscope?



10⁵

7. There are 5^{12} blades of grass in each acre of land, and a section of land has 5^4 acres of land. How many blades of grass does the land have?

5¹⁶

