

## Algebra 2 - Exponents

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**Simplify.**

1)  $3m^3 \cdot m^3$

2)  $3n \cdot 2n$

**Simplify. Your answer should contain only positive exponents.**

3)  $(x^3)^{-1} x^5$

4)  $-a^{-3} b^4 \cdot (ab^4)^3$

**Simplify. Your answer should contain only positive exponents with no fractional exponents in the denominator.**

5) 
$$\frac{\left(y^{-\frac{2}{3}}\right)^{\frac{7}{4}}}{x^{\frac{1}{4}} y^2 \cdot xy^{\frac{3}{2}}}$$

6) 
$$\frac{(b^2)^2 \cdot a^{\frac{2}{3}} b^{\frac{5}{3}}}{\left(b^{-\frac{3}{4}}\right)^{-4}}$$

**Solve each equation.**

7)  $5^{-3v} = 5^{3v-3}$

8)  $2^{-x-1} = 2^{2x}$

9)  $2^{-3a} = 16$

10)  $\frac{6^{-2n}}{6^2} = 36$

11)  $\frac{4^{2-x}}{\left(\frac{1}{2}\right)^{-3x}} = 64$

12)  $36^{3k} \cdot \frac{1}{6} = 216^{-3k}$