

## Exponent Laws

Date \_\_\_\_\_

 Simplify.

1)  $xy^3z^3 \cdot 3x^3y^3z^4$

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

2)  $4k \cdot 3h^4j^3$

3)  $3x^4y^{-2}z^{-2} \cdot 4y^{-2}$

4)  $\frac{p^3q^2}{4pq^4}$

5)  $\frac{4q^4}{2prq^4}$

6)  $\frac{4h^9j^2k^{-3}}{3h^{10}j^3k^8}$

**Simplify.**

7)  $(3m^6n^8p^5)^6$

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

8)  $(p^{-3}q^7r^{10})^6$

9)  $(3zx^2y^{-9})^{-1}$

10)  $\left(\frac{p^{10}r^4}{p^{-8}q^4r^9}\right)^3$

11)  $\left(\frac{x^5z^2}{x^{10}}\right)^{10}$

12)  $\frac{(x^8y^4z^{-10})^{-3}}{(x^2y^4)^{-9}}$

## Exponent Laws

Simplify.

1)  $xy^3z^3 \cdot 3x^3y^3z^4$   
 $3x^4y^6z^7$

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

2)  $4k \cdot 3h^4j^3$   
 $12kh^4j^3$

3)  $3x^4y^{-2}z^{-2} \cdot 4y^{-2}$   
 $\frac{12x^4}{y^4z^2}$

4)  $\frac{p^3q^2}{4pq^4}$   
 $\frac{p^2}{4q^2}$

5)  $\frac{4q^4}{2prq^4}$   
 $\frac{2}{pr}$

6)  $\frac{4h^9j^2k^{-3}}{3h^{10}j^3k^8}$   
 $\frac{4}{3k^{11}hj}$

Simplify.

7)  $(3m^6n^8p^5)^6$

$729m^{36}n^{48}p^{30}$

Simplify. Your answer should contain only positive exponents.

8)  $(p^{-3}q^7r^{10})^6$

$\frac{q^{42}r^{60}}{p^{18}}$

$p^{-18} q^{42} r^{60}$

9)  $(3zx^2y^{-9})^{-1}$

$\frac{y^9}{3zx^2}$

$\left(\frac{3zx^2}{y^9}\right)^{-1}$

10)  $\left(\frac{p^{10}r^4}{p^{-8}q^4r^9}\right)^3$

$\frac{p^{54}}{q^{12}r^{15}}$

$\left(\frac{p^{18}r^{-5}}{q^4}\right)^3$

$\frac{p^{18}}{r^5q^4}$

11)  $\left(\frac{x^5z^2}{x^{10}}\right)^{10}$

$\frac{z^{20}}{x^{50}}$

$(x^{-5}z^2)^{10}$

$\left(\frac{z^2}{x^5}\right)^{10}$

12)  $\frac{(x^8y^4z^{-10})^{-3}}{(x^2y^4)^{-9}}$

$\frac{z^{-30}y^{24}}{x^6}$

$\frac{(x^2y^4)^9}{(x^8y^4z^{-10})^3}$

$\frac{x^{18}y^{36}}{x^{24}y^{12}z^{-30}}$

$\frac{x^{-6}y^{24}z^{30}}{1}$