

## Laws of Exponents Worksheet

Simplify the following.

1.  $a^3 \times a^{-5}$

2.  $p \times p^4$

3.  $a^2 \times a^{-3} \times a^4$

4.  $(2b^6)(b^{11})$

5.  $(-9x^4)(-6x^3)$

6.  $(3a^3b)(4a^2b^7)$

7.  $(3x^2y)(4xy^2)(-2x^3y)$

8.  $(3x^4y^3z^2)(5x^2y^{-4})$

9.  $\frac{x^6}{x^2}$

10.  $\frac{x^5y^8}{xy^2}$

11.  $\frac{a^8b^{12}c^{16}}{a^4b^6c^4}$

12.  $\frac{9y^{-5}}{3y}$

13.  $40x^7y^3 \div 8y^3$

14.  $\frac{-18k^4j^4}{9j^4k^2}$

15.  $(-24x^6y^{12}z^{10}) \div (-3x^2y^6z^2)$

16.  $(15x^4) \div (10x^3)$

17.  $(x^2)^3$

18.  $(a^3b^{-2})^4$

19.  $(3x^4)^2$

$$20. (x^4y^3z^3)^3$$

$$21. (-3a^4b^2)^3(-2a^3b)^2$$

$$22. (-x^4y^8)^7$$

$$23. (-2xy^7)^2$$

$$24. (-7^6)^{11}$$

$$25. (y^2 \times y^4)^2$$

$$26. \left(\frac{x^9}{x^3}\right)^2$$

$$27. \frac{(-8x^5y^3)(x^4y)}{12x^6}$$

$$28. \left(\frac{x^5 \times x^2}{x^4}\right)^2$$

Laws of Exponents Worksheet

Simplify the following.

1.  $a^3 \times a^{-5}$

$$a^{-2} = \frac{1}{a^2}$$

2.  $p^1 \times p^4$

$$p^5$$

3.  $a^2 \times a^{-3} \times a^4$

$$a^3$$

4.  $(2b^6)(b^{11})$

$$2b^{17}$$

5.  $(-9x^4)(-6x^3)$

$$54x^7$$

6.  $(3a^3b)(4a^2b^7)$

$$12a^5b^8$$

7.  $(3x^2y)(4xy^2)(-2x^3y)$

$$-24x^5y^4$$

8.  $(3x^4y^3z^2)(5x^2y^{-4})$

$$\frac{15x^6y^{-1}z^2}{1} = \frac{15x^6z^2}{y}$$

9.  $\frac{x^6}{x^2}$

$$x^4$$

10.  $\frac{x^5y^8}{xy^2}$

$$x^4y^6$$

11.  $\frac{a^8b^{12}c^{16}}{a^4b^6c^4}$

$$a^4b^6c^{12}$$

12.  $\frac{9y^{-5}}{3y^1}$

$$\frac{3y^{-6}}{1}$$

$$\frac{3}{y^6}$$

13.  $40x^7y^3 \div 8y^3$

$$5x^7$$

14.  $\frac{-18k^4j^4}{9j^4k^2}$

$$-2k^2$$

15.  $(-24x^6y^{12}z^{10}) \div (-3x^2y^6z^2)$

$$8x^4y^6z^8$$

16.  $(15x^4) \div (10x^3)$

$$\frac{15x^4}{10x^3} = \frac{3x}{2}$$

17.  $(x^2)^3$

$$x^6$$

18.  $(a^3b^{-2})^4$

$$\frac{a^{12}b^{-8}}{1}$$

$$\frac{a^{12}}{b^8}$$

19.  $(3x^4)^2$

$$9x^8$$

$$20. (x^4 y^3 z^3)^3$$

$$x^{12} y^9 z^9$$

$$21. (-3a^4 b^2)^3 (-2a^{-3} b)^2$$

$$(-27a^{12} b^6)(4a^{-6} b^2) \\ = -108a^6 b^8$$

$$22. (-x^4 y^{-8})^7$$

$$-\frac{x^{28} y^{-56}}{1} = -\frac{x^{28}}{y^{56}}$$

$$23. (-2xy^7)^2$$

$$4x^2 y^{14}$$

$$24. (-7^6)^{11}$$

$$(-7)^{66} =$$

$$25. (y^2 x y^4)^2$$

$$(x y^6)^2 = x^2 y^{12}$$

$$26. \left(\frac{x^9}{x^3}\right)^2 (x^6)^2 = x^{12}$$

$$27. \frac{(-8x^5 y^3)(x^4 y)}{12x^6}$$

$$-\frac{8x^9 y^4}{12x^6} = -\frac{2x^3 y^4}{3}$$

$$28. \left(\frac{x^5 x x^2}{x^4}\right)^2$$

$$\left(\frac{x^7}{x^4}\right)^2 = (x^3)^2 = x^6$$