

Exponents Take 2 Worksheet

Name: KEY

Evaluate the expression. Write down which exponent property you used. Write your answer using exponents and as a simplified fraction. NO DECIMALS.

1.) $2^3 \cdot 2^2$

$$2^{3+2}$$
$$2^5$$

Exponent property: Product of Powers

Answer using exponents: 2^5

Simplified answer: 32

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

$$3^{2 \cdot 4}$$
$$3^8$$

Exponent property: Power of a Power

Answer using exponents: 3^8

Simplified answer: 6561

3.) $\frac{5^7}{5^5}$

$$5^{7-5}$$
$$5^2$$

Exponent property: Quotient of Powers

Answer using exponents: 5^2

Simplified answer: 25

4.) $(-17)^0$

$$1$$

Exponent property: Zero Exponent

Answer using exponents: 1

Simplified answer: 1

5.) 5^{-3}

$$\frac{1}{5^3}$$

Exponent property: Negative Exponent

Answer using exponents: $\frac{1}{5^3}$

Simplified answer: $\frac{1}{125}$

6.) $\frac{1}{7^{-2}}$

$$\frac{7^2}{1}$$
$$7^2$$

Exponent property: Negative Exponent

Answer using exponents: 7^2

Simplified answer: 49

Simplify the expression. Write down each exponent property you used.

7.) $(6x)^2$
 $(6)^2 (x)^2$
 $36x^2$

Exponent properties: Power of Product

Simplified answer: $36x^2$

8.) $8x^{-9}$
 $\frac{8}{x^9}$

Exponent properties: Negative exponent

Simplified answer: $\frac{8}{x^9}$

9.) $(\frac{x^2}{y})^3$
 $\frac{(x^2)^3}{(y)^3}$
 $\frac{x^6}{y^3}$

Exponent properties: Power of a quotient, power of a power

Simplified answer: $\frac{x^6}{y^3}$

10.) $\frac{3x^3y^2}{9xy^5}$
 $\frac{1x^{3-1}y^{2-5}}{3}$
 $\frac{1x^2y^{-3}}{3}$

Exponent properties: Quotient of powers, negative exponent

Simplified answer: $\frac{x^2}{3y^3}$

11.) $(3ab)^3$
 $(3)^3 (a)^3 (b)^3$
 $27a^3b^3$

Exponent properties: Power of a product

Simplified answer: $27a^3b^3$

12.) $3a^7 \cdot a^{-4}$
 $3a^{7+(-4)}$
 $3a^3$

Exponent properties: Product of powers

Simplified answer: $3a^3$

13.) $(\frac{x}{y})^{-1}$
 $\frac{x^{-1}}{y^{-1}}$
 $\frac{y}{x}$

Exponent properties: Quotient of powers, negative exponent

Simplified answer: $\frac{y}{x}$

14.) $(2x^3y)^2 \cdot (3xy)^3$
 $(2)^2 (x^3)^2 (y)^2 \cdot (3)^3 (x)^3 (y)^3$
 $4x^6y^2 \cdot 27x^3y^3$
 $108x^9y^5$

Exponent properties: Power of a product, Power of a power, product of powers

Simplified answer: $108x^9y^5$