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Negative Exponents of Fractions

Name: _____ Score: _____

Calculate the following negative exponents.

$$\left(\frac{1}{5}\right)^{-2} = \quad \left(\frac{1}{3}\right)^{-2} = \quad \left(\frac{1}{4}\right)^{-3} =$$

$$\left(\frac{1}{7}\right)^{-2} = \quad \left(\frac{2}{6}\right)^{-2} = \quad \left(\frac{1}{2}\right)^{-2} =$$

$$\left(\frac{1}{6}\right)^{-3} = \quad \left(\frac{1}{4}\right)^{-4} = \quad \left(\frac{1}{2}\right)^{-4} =$$

$$\left(\frac{2}{8}\right)^{-4} = \quad \left(\frac{8}{16}\right)^{-3} = \quad \left(\frac{3}{12}\right)^{-3} =$$

$$\left(\frac{5}{10}\right)^{-5} = \quad \left(\frac{2}{4}\right)^{-5} = \quad \left(\frac{6}{18}\right)^{-2} =$$

$$\left(\frac{4}{16}\right)^{-3} = \quad \left(\frac{1}{7}\right)^{-1} = \quad \left(\frac{3}{15}\right)^{-3} =$$

$$\left(\frac{6}{12}\right)^{-8} = \quad \left(\frac{1}{8}\right)^{-3} = \quad \left(\frac{1}{2}\right)^{-1} =$$

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Quiz & Worksheet - Simplifying Expressions with Rational Exponents

<http://study.com/academy/practice/quiz-worksheet-simplifying-expressions-with-rational-exponents.html>

1. Simplify the expression using positive exponents.

$$\left(\frac{m^{\frac{1}{2}}n^{\frac{3}{4}}}{m^{\frac{2}{5}}n^{\frac{3}{4}}}\right)^{-6}$$

$$^c m^{\frac{27}{5}}n^{\frac{17}{2}}$$

$$^c m^{\frac{27}{5}}n^{\frac{17}{2}}$$

$$^c m^{\frac{6}{5}}n^{\frac{17}{4}}$$

$$^c m^{-\frac{3}{5}}n^{\frac{1}{2}}$$

$$^c n^{\frac{1}{2}}m^{\frac{3}{5}}$$

2. Simplify the expression using positive exponents.

$$\frac{(p^{\frac{3}{4}}q^2)^{\frac{1}{3}}}{(p^{-\frac{2}{3}}q^{\frac{1}{2}})(pq)^{-\frac{1}{3}}}$$

$$^c q^{\frac{1}{2}}p^{\frac{5}{4}}$$

$$^c \frac{p^{\frac{1}{6}}}{q^{\frac{2}{3}}}$$

$$^c q^{\frac{1}{6}}p^{\frac{2}{3}}$$

$$^c q^{\frac{1}{6}}p^{-\frac{2}{3}}$$

$$^c q^{-\frac{1}{6}}p^{-\frac{2}{3}}$$

3. Simplify the expression using positive exponents.

$$\frac{(p^{-\frac{3}{4}}q^3)^{\frac{1}{3}}}{(p^{-2}q^4)(p^2q^4)^{\frac{1}{2}}}$$

$$^c \frac{q^{\frac{3}{4}}}{p^5}$$

$$^c \frac{p^{-\frac{3}{4}}}{q^{-5}}$$

$$^c p^{\frac{3}{4}}q^5$$

$$^c \frac{p^{\frac{3}{4}}}{q^5}$$

$$^c \frac{(p^{\frac{3}{4}}q)}{(p^0q^4)}$$

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| Exponents Worksheet | |
|---------------------|-------------|
| Name | Score |
| 1A. 3^2 | 1A. 6^4 |
| 2A. 5^3 | 2A. $(9)^2$ |
| 3A. 4^2 | 3A. $(9)^2$ |
| 4A. 2^2 | 4A. 6^4 |
| 5A. 8^2 | 5A. $(9)^2$ |
| 6A. 3^2 | 6A. $(9)^2$ |

Name: _____ Score: _____
 Teacher: _____ Date: _____

Exponents and Multiplication

Identify the correct answer and write the correct exponent.

| | |
|---------------------------------|---------------------------------|
| 1. $3^2 \cdot 3^3$ | 8. $(12)^2 \cdot (12)^2$ |
| 2. $(12)^2 \cdot (12)^2$ | 9. $10^2 \cdot 10^2 \cdot 10^2$ |
| 3. $10^2 \cdot 10^2 \cdot 10^2$ | 10. $3 \cdot 3^2$ |
| 4. $3 \cdot 3^2$ | 11. $10 \cdot 10^2$ |
| 5. $(12)^2 \cdot (12)^2$ | 12. $10^2 \cdot 10^2$ |
| 6. $10^2 \cdot 10^2$ | 13. $10^2 \cdot 10^2$ |
| 7. $10^2 \cdot 10^2$ | 14. $3 \cdot 3^2$ |

Algebra 1 Exponent Rules Mixed Review

Name _____
 Date _____ Period _____

Assume that no denominator is equal to zero on this worksheet. Simplify the expression using the Product of Powers rule.

- | | |
|----------------------|--------------------------|
| 1. $X^3 \cdot X^5$ | 2. $a^{15} \cdot a^{11}$ |
| 3. $3y^8 \cdot 2y^2$ | 4. $5j^4(-9j^3)$ |

Simplify the expression using the Power of a Power rule.

- | | |
|--------------|------------------|
| 5. $(x^5)^2$ | 6. $(a^3)^6$ |
| 7. $(h^4)^3$ | 8. $[(k^5)^2]^4$ |

Simplify the expression using Power of a Product Rule

- | | |
|-----------------|----------------|
| 9. $(xy)^7$ | 10. $(4gz)^2$ |
| 11. $(-2awy)^3$ | 12. $-3(km)^4$ |

Simplify the expression using Quotient of Powers Rule.

- | | |
|---------------------------|------------------------------|
| 13. $\frac{d^8}{d^4}$ | 14. $\frac{t^9}{t^3}$ |
| 15. $\frac{a^5b^3}{a^2d}$ | 16. $\frac{x^3y^2z}{x^2y^2}$ |

Fractional exponent worksheet.

This Fractions Worksheet will produce problems for practicing solving fractions with exponents. Click here for More Fractions Worksheets This worksheet provides ten problems. Students must find the value of each expression, or simplify the expression. Page 2 [Home] This worksheet is a PDF document. You will need Adobe Acrobat Reader to view the worksheet or answers. Each worksheet may consist of several pages, scroll down to see everything. This lesson includes 91 additional questions and 243 additional question variations for subscribers. Are you ready to learn how to work with Fractional Exponents? (Need help with Negative Exponents, click here for our super easy 3-step explanation) Before you learn how to work with fractional exponents and use them to express powers and roots together, let's do a quick vocabulary review: It is important that you are familiar with identifying the root index and radicand before moving forward. Note: If a radical symbol does not include a root index value, the number 2 is implied (square root). Example: The radicand is 64 and the root index is 3. The left side of the equation implies "the cube root of 64" Now that you are able to identify the root index and the radicand, you are ready to understand fraction exponents. A fractional exponent is another way of expressing powers and roots together. You will now learn how to express a value either in radical form or as a value with a fractional exponent. Example: Express the square root of 49 as a fractional exponent. Note that we can rewrite 49 as 49^1 since they are equivalent (you will see in a minute why this is helpful) In this case, the square root of 49 is equal to $49^{(1/2)}$ because they are both equal to 7. But why? Why is the square root of 49 equal to $49^{(1/2)}$? Here is the rule that you can use to work with fractional exponents from now on: Now, let's apply the above rule to two more examples: Example A: If you need a fast and easy way to convert between radical expressions and expressions with fractional exponents, then you can take advantage of the many free online fractional exponents calculators that are available. This free fractional exponents calculator from www.calculatorsoup.com shares all of the steps involved in converting and also simplifies. To use the fractional exponent calculator, simply input the base value, the value of the numerator and the value of the denominator and press calculate. Math worksheets and visual curriculum Copyright © 2021 K5 Learning

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