

Solving basic exponential equations worksheet

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Use the Power Property of Logarithms
Solve for x (round to the thousandths place)

Examples:

5) $2^x = 8^{x-2}$ 6) $2^{2x+3} = 3^{3x}$

$$\log_2 2^x = \log_2 8^{x-2}$$

$$x \cdot \log_2 2 = (x-2) \cdot \log_2 8$$

$$x \cdot 1 = (x-2) \cdot 3$$

$$x = 3x - 6$$

$$2x = 6$$

$$x = 3$$

$$\log_2 2^{2x+3} = \log_2 3^{3x}$$

$$(2x+3) \cdot \log_2 2 = 3x \cdot \log_2 3$$

$$(2x+3) = 3x \cdot \frac{\log_2 3}{\log_2 2}$$

$$(2x+3) = 3x \cdot 1.5849$$

$$2x+3 = 4.7537x$$

$$2x - 4.7537x = -3$$

$$-2.7537x = -3$$

$$x = 1.074$$

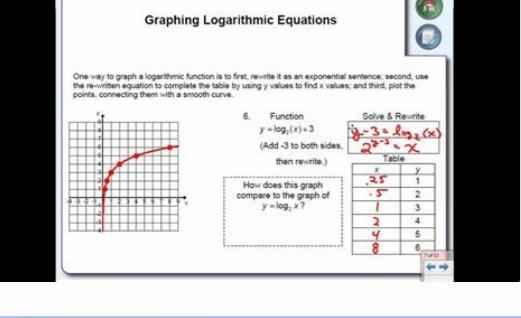
Name: _____	Date: _____	
Use inverse (opposite) operations to isolate the variables and solve the equations.		
1) $n + 16 = 34$	2) $22 = c \cdot 4$	3) $x + 21 = 40$
$n =$	$c =$	$x =$
4) $b - 25 = 55$	5) $d + 6 = 15$	6) $11f = 44$
$b =$	$d =$	$f =$
7) $\frac{m}{8} = 7$	8) $4n = 52$	9) $\frac{b}{6} = 3$
$m =$	$n =$	$b =$
10) $2k = -36$	11) $5r = 5.75$	12) $1.01 = p + 0.8$

Missing Numbers in Equations (A)

Find the value of each unknown.

$k + 7 = 10$	$2 + s = 9$	$7 + q = 12$	$7 + r = 13$
$5 + m = 8$	$2 + s = 10$	$3 + d = 9$	$3 + x = 9$
$d + 1 = 3$	$8 + z = 9$	$8 + n = 17$	$c + 5 = 7$
$5 + y = 8$	$g + 6 = 9$	$1 + s = 10$	$z + 3 = 5$
$8 + c = 11$	$6 + n = 12$	$v + 8 = 15$	$t + 7 = 10$
$8 + x = 9$	$s + 4 = 13$	$b + 7 = 16$	$2 + s = 11$
$8 + u = 17$	$5 + t = 11$	$r + 4 = 8$	$9 + c = 16$
$1 + d = 9$	$2 + u = 10$	$k + 7 = 10$	$5 + s = 8$
$2 + j = 7$	$c + 5 = 12$	$g + 9 = 15$	$5 + c = 8$
$1 + q = 8$	$9 + q = 14$	$7 + n = 14$	$u + 2 = 10$

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EXAMPLE 2 Changing to a Common Base

c) $3^{2x} = 81$ Express 81 with base 3
 $3^{2x} = 3^4$ $\rightarrow 3^4 = 81$

 $2x = 4$
 $\frac{2x}{2} = \frac{4}{2}$
 $x = 2$

TO SOLVE AN EXPONENTIAL EQUATION

1. Make the bases on both sides of the equation the same
2. Use the exponents to make an equation
3. Solve

Solving simple exponential equations worksheet. Solving exponential equations worksheet pdf. Solving exponential equations worksheets. Solving exponential equations worksheet answers.

Exponential Equations - Solving by This self-checking worksheet features exponential equations using bases which have the same prime factors. Once each base is reduced to its prime factor, the exponents can be solved using basic algebra skills. The equations do not require factoring. Once the problems are solved, the solutions will help the student solve a riddle. Subjects:Types:Solving Exponential Equations Practice (FREEBIE) By This product includes 9 problems on solving exponential equations. It also comes with an answer key. All problems are solved without using logarithms. The top portion of the product includes support text, like exponent properties and list of base and exponent products (e.g. $2^3 \cdot 3^2 = 8 \cdot 9$, etc.). The product includes a PDF and editable word document. You may also like:Solving Exponential Equations - Task CardsSolving Exponential Equations - Scavenger HuntSolving Exponential Equations - PuzzleSolving Basic Exponential Equations Activity: Are you looking for a quick Solving Basic Exponential Equations Activity? Then this resource is for you! This is a no prep, self-checking 6 question Google Sheets activity that can be used for homework, classwork, quiz, check-in, etc. This product covers solving exponential equations that do not require the use of logs. Students will practice converting to common bases and then solve equations that are in linear and quadratic forms. My Product IncludesDigital Google Sheets ActivityPrintable reconSolving Exponential and Logarithmic Equationsby Directions: Cut out each domino. Decide which domino you are going to start with. Write the problem in box #1. Solve the problem; then find the answer on another domino. The problem on the other side of the domino goes in box #2. Continue this process until all dominoes have been used and they make a complete rectangle. Subjects: The objectives for this lesson are How to solve exponential and logarithmic equations and How to use exponential and logarithmic equations to answer questions about real life. These lessons are done in Smart Notebook. Each lesson contains an Opening Activity (bell ringer)an objectives slide, which includes the common core standards the lesson is tied to; a definition slide; example slides; 'try' slides for the students; a stop and reflect slide, and a recap slide. Feel free to edit, change, addEquations - Solving Quadratic Rational Exponentsby This self-checking worksheet solves quadratic equations which have rational (fractional) exponents. Some solutions are extraneous solutions making the student check their solution each time. My stronger math students 'enjoyed' this worksheet but the weaker ones struggled with it. When the student finished the worksheet, a solution to a riddle will be unveiled. Subjects:Types:Exponential Equations SmartBoard Lessonby The objectives for this lesson are: How to use the formula for compound interest and exponential growth and decay formulas. How to use solve real-life problems modeled by exponential growth formulas. The lesson includes equation and graph examples of the exponential functions and also multiple examples with the equation for finding the balance in an account. These lessons are done in Smart Notebook. Each lesson contains an Opening Activity (bell ringer)an objectives slide, which includes the cPage 2This software is installed on the computer, it is useful to calculate, has all the functionality necessary for learning and teaching. Suitable for presentation to faculty information to the computer user. You can calculate normal, solving equations, trigonometry, probability, exponential, exponential, logarithmic, accounting, statistics, function, integral, derivative, limit, ... Page 3This is one page (front and back) of all the main notes for an exponentials and logarithms unit. I am using it in my precalculus class for review, but it could be used in any class this topic appears. The notes include the various formulas, graphs, what it means to be inverses, properties of logarithms, transformations, and solving exponential and logarithmic equations. Learn how to solve problems like the following: Solve the exponential equation: $[25(x+1)]^2 = 625$ Solve these 10 exponential equations. Example: $4(x+3) = 256$ Follow the steps to solve the following problem: $[221(x-5)]^4 = 49$. Afterwards, practice the skill by completing six similar problems. Solve these 10 exponential equations and then score your answers. Example: $[21(x+3)]^4 = 441$ Complete the problems. Put your answer in the "My Answer" box. Example: $5(5x-11) = 625$ Learn how to solve the following problem: Solve the exponential equation $5d = 22$ Solve these 10 exponential equations. Example: $6x = 11$ Solve these 10 exponential equations. Example: $5x = 12$ Follow the steps to solve the following problem: Solve the exponential equation $11d = 23$. Then practice the skill by solving the problems given. Solve these 10 problems, then check and score your answers. Example: $5x = 110$ Complete the problems, then put your answer in the "My Answer" box. Example: $8x = 16$ Learn Maths from the best First Lesson Free! Solve the exponential equations: 1 2 3 4 5 6 7 The best Maths tutors availableExercise 2 Solve the following exponential equations. 1 2 3 Solve the following exponential simultaneous equations. 1 2 3 Now, we will solve the exponential equations from exercise 1 step by step. 1 Since, hence we can write on the right side of the equation: 2 We can write the expression as The resulting expression after simplifying will be: Cancel 2 from both sides of the equation to get the following answer: 3 We can write the above expression as: Cancel 2 from both sides of the equation to get: Divide both sides by 2 and set the equation equal to 0 by taking the constant to the right side of the equation: Factor the equation like this: Either or Hence, or 4 Since, hence we can write the equation like this: Cancel 2 from both sides of the equation to get the following expression: 5 Take log on both sides: 6 It can be written as: Take log on both sides of the equation: 7 Take log on both sides of the equation: Solution of exercise 2 Solve the following exponential equations. 1 Suppose Solve the expression by taking L.C.M of the left hand side: Set the equation to 0 by taking the constant to the left hand side of the equation: Simplify it further to get the following expression: Find factors of the above expression like this: or or The solution for will not be determined, hence the exponential equation will have only one solution, i.e. 2 Put Solve the above expression by factoring like this: has no solution, has the solution which is 3 We can write the above expression like this: Put 4 5 Suppose or Solution of exercise 3 Solve the exponential simultaneous equations. 1 First, we will simplify the first expression and convert it into linear equation in two variables. Take the expression from the denominator on the left hand side to the right hand side. Hence, the resultant equation will be Now, solve the system of linear equations Solving the system of linear equations we get the following values for and 2. The second expression can be written as: Put and the resultant system of equations will be: Solve the above system of linear equations to get the value of and . Since and , hence we can write the second expression as: Simplifying both the equations further we will get: and You could check for reputable maths tutors here. The platform that connects tutors and students Quadratic Formula D.Russell Use the Quadratic Formula to Solve the Equations(Answers on 2nd page of PDF. Sample questions are: 1.) $2x^2 = 98$ 2.) $4x^2 + 2x = 42$ 3.) $x^2 = 90 - 2x$ 4.) $x^2 + 2x = 63$ 5.) $5x^2 - 15 = 10$ 6.) $2x^2 = 44 + 3x$ 7.) $4x^2 - 10x = 84$ 8.) $x^2 - 16 = -6x$ 9.) $x^2 = 36$ 10.) $x^2 - 4x = 96$ Each worksheet is in PDF for quick printing. Note that the answers are found on the second page of the PDF. Although there are other methods to solve quadratic equations (factoring, graphing, completing the square) it is important to use efficiency, hence you are asked to use the quadratic formula to solve these questions. However, there are other worksheets that require you to complete the square, factor and graphing. It's important to be able to use the various methods so that you will eventually be able to use the most efficient method. After all, algorithms in math were developed to increase efficiency. Long ago, a teacher reminded me in a jokingly way that mathematicians are lazy, hence let's find all the shortcuts possible. Mobile Notice You appear to be on a device with a "narrow" screen width (i.e. you are probably on a mobile phone). Due to the nature of the mathematics on this site it is best views in landscape mode. If your device is not in landscape mode many of the equations will run off the side of your device (should be able to scroll to see them) and some of the menu items will be cut off due to the narrow screen width. Solve each of the following equations.

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