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All rights reserved.Copyright © MAD for MATH ✎ SitemapWe use cookies for you to benefit from our website in the most efficient way and for improving your experience on our website. You may see the principles concerning collection of user data in our Privacy Statement. If you prefer to disable the cookies, you may delete or block the cookies from your browser’s settings. Do math calculations with mixed numbers (mixed fractions) including fractions, integers, mixed numbers and improper fractions. The Mixed Numbers Calculator can add, subtract, multiply and divide mixed numbers and fractions. What is a Mixed Number? A mixed number is a positive or negative integer and a proper fraction, together. An integer is a whole number without a decimal, and a proper fraction is a fraction where the top number is smaller than the bottom number. What Can the Mixed Numbers Calculator Do? This online calculator does simple math operations on whole numbers, integers, mixed numbers, fractions and improper fractions by adding, subtracting, dividing or multiplying. The answer is a reduced fraction and a mixed number if it exists. Enter mixed numbers, whole numbers or fractions in the following formats: Mixed numbers: Enter as 1 1/2 which is one and one half or 25 3/32 which is twenty five and three thirty seconds. Use one space between the whole number and fraction, and use a forward slash to input fractions. Whole numbers and positive or negative integers Fractions: Enter as 3/4 which is three fourths or 3/100 which is three one hundredths Add Mixed Numbers using the Adding Fractions Formula Convert each mixed number to an improper fraction: Multiply the whole number by the denominator, then add the numerator. Place that result over the denominator. Use the formula for adding fractions: a/b + c/d = (ad + bc) / bd Reduce fractions and simplify if possible Equation to Add Fractions \(\dfrac{a}{b} + \dfrac{c}{d} = \dfrac{(a \times d) + (b \times c)}{b \times d} \) Example Add 1 2/6 and 2 1/4 \(1 \dfrac{2}{6} + 2 \dfrac{1}{4} = \dfrac{8}{6} + \dfrac{9}{4} \) \(= \dfrac{(8 \times 4) + (9 \times 6)}{6 \times 4} \) \(= \dfrac{32 + 54}{24} = \dfrac{86}{24} = \dfrac{43}{12} \) 1 2/6 + 2 1/4 = 8/6 + 9/4 = (8*4 + 9*6) / 6*4 = 86 / 24 So we get 86/24 which simplifies to 3 7/12 Subtract Mixed Numbers using the Subtracting Fractions Formula Convert each mixed number to an improper fraction: Multiply the whole number by the denominator, then add the numerator. Place that result over the denominator. Use the formula for subtracting fractions: a/b - c/d = (ad - bc) / bd Reduce fractions and simplify if possible \(\dfrac{a}{b} - \dfrac{c}{d} = \dfrac{(a \times d) - (b \times c)}{b \times d} \) Example Subtract 2 1/4 from 1 2/6 1 2/6 - 2 1/4 = 8/6 - 9/4 = (8*4 - 9*6) / 6*4 = -22 / 24 Reduce the fraction to get -11/12 Multiply Mixed Numbers using the Multiplying Fractions Formula Convert each mixed number to an improper fraction: Multiply the whole number by the denominator, then add the numerator. Place that result over the denominator. Use the formula for multiplying fractions: a/b * c/d = ac / bd Reduce fractions and simplify if possible Equation to Multiply Fractions \(\dfrac{a}{b} \times \dfrac{c}{d} = \dfrac{a \times c}{b \times d} \) Example Multiply 1 2/6 by 2 1/4 1 2/6 * 2 1/4 = 8/6 * 9/4 = 8*9 / 6*4 = 72 / 24 Reduce the fraction to get 3/1 and simplify to 3 Divide Mixed Numbers using the Dividing Fractions Formula Convert each mixed number to an improper fraction: Multiply the whole number by the denominator, then add the numerator. Place that result over the denominator. Use the formula for dividing fractions: a/b ÷ c/d = ad / bc Reduce fractions and simplify if possible Equation to Divide Fractions \(\dfrac{a}{b} \div \dfrac{c}{d} = \dfrac{a \times d}{b \times c} \) Example Divide 1 2/6 by 2 1/4 1 2/6 ÷ 2 1/4 = 8/6 ÷ 9/4 = 8*4 / 9*6 = 32 / 54 Reduce the fraction to get 16/27 Related Calculators To do math on simple proper or improper fractions use the CalculatorSoup® Fractions Calculator. This calculator simplifies improper fraction answers into mixed numbers. If you want to simplify an individual fraction into lowest terms use our Simplify Fractions Calculator. To learn how to factor numbers to find the greatest common factor (GCF) see the Greatest Common Factor Calculator. If you are simplifying large fractions by hand you can use the Long Division with Remainders Calculator to find whole number and remainder values. On the hunt for a tool that can divide any combination of fractions, mixed numbers, and whole numbers? If so, look no further - this dividing fractions calculator is the one for you! This calculator can help you with many different questions: ✔ How to divide fractions with whole numbers? ✔ How do you divide a whole number by a fraction? ✔ How to divide mixed fractions? How to sum two fractions? And how to convert fractions to decimals and decimals to fractions? Well, the last point isn't the purpose of this tool. Better check out our adding fractions calculator for tips and tricks on fraction addition, as well as two excellent converters, the fractions to decimals converter and the decimals to fractions calculator, designed to remove any doubts about fractions conversion. And for those searching for an all-in-one solution, we have something special – a comprehensive fraction calculator. Give it a go! Dividing fractions is really similar to multiplying fractions. You just need to follow these steps to divide two fractions (for example, 45\frac 4 554 by 23\frac 2332): Calculate the reciprocal of your second fraction - the divisor (the fraction you want to divide by). To find the reciprocal, simply flip the number upside down so that the top number is now at the bottom and the bottom number is now above the line: 23→32\qquad \frac{2}{3}\rightarrow\frac{3}{2}32→23Remember that there's one number which doesn't have a reciprocal - 000. So our second fraction can't have its top number equal to 000 - and we hope that we don't need to remind you that you can't divide by zero, so the bottom number of a fraction can also never be zero. Multiply your fractions. As a reminder, to multiply two fractions, you need to multiply the numerator by the other numerator and the denominator by the other denominator: 45×32=4×35×2=1210\qquad \frac{4}{5}\times\frac{3}{2} = \frac{4\times 3}{5\times2}=\frac{12}{10}54×23=5×24×3=1012 Finally, simplify the result, if needed: 1210=65\qquad \frac{12}{10}=\frac{6}{5}1012=56And that's it! That wasn't so difficult, was it? ☺ Our dividing fractions calculator shows you the step-by-step solution to your chosen example if you still have problems understanding how to divide fractions. To summarize, you've just learned the general rules for dividing fractions. If you're searching for more specific instructions, like dividing mixed fractions or dividing fractions by whole numbers, keep reading! When it comes to dividing fractions by whole numbers, it's pretty much the same as above: you need to multiply your fraction by a reciprocal – but this time, it's a reciprocal of the whole number. Let's look at an example, dividing 12\frac 1 221 by 333: Find the reciprocal of your whole number. As you may write every whole number as that number over 111, then 333 is 31\frac 3 113. Its reciprocal is then 13\frac1 331: 31↗↘13\qquad \frac{\textcolor{#ff8000}3}{\textcolor{#5c85d6}1} earrow\kern{-1em} \searrow \frac{\textcolor{#5c85d6}1}{\textcolor{#ff8000}3}13↗↘3112×13=1×12×3=16\qquad \frac{1}{2}\times\frac{1}{3}=\frac{1\times1}{2\times3}=\frac{1}{6}21×31=2×31×1=61 This time you don't need any fraction reduction, as the result will always be in its simplest form. To sum up, the whole operation of dividing fractions by whole numbers looks as follows:123=1231=12×13=1×12×3=16\begin{align*} \frac{\frac{1}{2}}{3} &= \frac{\frac{1}{2}}{ \frac{3}{1}} =\frac{1}{2}\times\frac{1}{3}\\[1.5em] &=\frac{1\times1}{2\times3}=\frac{1}{6} \end{align*}321=1321=21×31=2×31×1=61So, in other words, you can say that the denominator of your fraction is multiplied by the whole number. Let's think about a word problem for the above example to help you intuitively understand dividing fractions by whole numbers. The day after Halloween , two of your friends came for a visit. You'd like to offer them some food, but you only have half of a pumpkin pie in the house 😱. What proportion of the entire pie should each slice, if you want to divide it equally? Don't forget about yourself; you'd like to eat that yummy pie, too .That's right! Every person will get one-sixth of a pie. Dividing a whole number by a fraction should be a piece of cake for you (or a slice of pumpkin pie?). The protocol is really similar, let's check how to divide 222 by 16\frac 1 661: Find the reciprocal of the divisor – the second fraction. 16↗↘61\qquad \frac{\textcolor{#ff8000}1}{\textcolor{#5c85d6}6} earrow\kern{-1em} \searrow \frac{\textcolor{#5c85d6}6}{\textcolor{#ff8000}1}61↗↘16 Do the fraction multiplication. As you can write 222 as 21\frac 2 112: 21×61=2611=121=12\qquad \begin{align*} &\frac{2}{1} \times\frac{6}{1}=\frac{\frac 2 6}{\frac 1 1} \\[1.5em] &=\frac {12}{1} = 12 \end{align*}12×16=1162=112=12And that's everything! In this case, you don't need to do any simplification. Coming back to the pumpkin pie, you can imagine this problem as the question "How many slices that are one-sixth of a pie fit into two pies?"Yes, exactly! If you divide two pies into 16\frac 1 661 slice, you will get 121212 such slices in total. We're pretty sure you've already guessed how to divide mixed fractions. You need only one additional step – to change the mixed fraction to an improper fraction: Let's assume you want to divide 3123\frac{1}{2}321 by 1451\frac{4}{5}154: Change any mixed numbers to improper fractions. Here is a quick reminder on how to do it: multiply the denominator by the whole number and add the numerator to get a new numerator. The denominator stays the same: 312=3×2+12=72\qquad 3\frac{1}{2} = \frac{3\times 2+1}{2}=\frac{7}{2}321=23×2+1=27145=1×5+45=95\qquad 1\frac{4}{5}=\frac{1\times5+4}{5}=\frac{9}{5}154=51×5+4=59Then, follow the standard procedure: Find the reciprocal of the second fraction: 95→59\qquad \frac{9}{5}\rightarrow\frac{5}{9}59→95 72×59=7×52×9=3518=11718\qquad \begin{split} \frac{7}{2}\times\frac{5}{9}&=\frac{7\times5}{2\times9} \\[1.5em] &=\frac{35}{18} = 1 \frac{17}{18} \end{split}27×95=2×97×5=1835=11817Of course, our dividing fractions calculator can deal with dividing mixed fractions As you've read the paragraph on how to divide fractions with whole numbers, we're sure this will be a walk in the park for you. Let's check how to calculate 34\frac{3}{4}43 divided by 222 as fractions, using this dividing fractions calculator: Choose the fraction form. Let's pick the mixed number option, as you'd like to enter a whole number (however, simple fraction form is also fine, then you should write the whole number as the number over 1). Input the first fraction. For the chosen example, put 333 as a numerator (top number), and 444 in the denominator box (it's the bottom number). You can ignore the whole number field or input 000. Enter the second value. Input 222 to the whole number box and leave the other fields empty. And that's it - the dividing fractions calculator worked out the answer! Now you know that 34\frac{3}{4}43 divided by 222 in fraction form is 38\frac{3}{8}83. If you need some details on what the calculations are for your example, check the step-by-step solution. Finally, let's discuss a slightly more unusual case – dividing three fractions. To make it even more complicated, let's choose fractions in different forms: two fractions in their simple form (one negative) and one fraction that is a mixed number:714:56−23=?7\frac{1}{4}:\frac{5}{6}:-\frac{2}{3}=?741:65:−32=? Select the proper form of the fraction. You need the mixed number option, as you have one mixed fraction. Input the fractions: 1st fraction: 777 as the whole number, 111 as the numerator, 444 as the denominator; 2nd fraction: empty or 000 as the whole number, 555 as the numerator, 666 as the denominator; and 3rd fraction: empty or 000 as the whole number, −2-2−2 as the numerator, 333 as the denominator. Check how to divide 3 fractions with a step-by-step solution. The result of the operation is −26120=−13120-\frac{261}{20} = -13\frac{1}{20}−20261=−13201. While fraction division has one more step than fraction multiplication, it is still much easier than adding and subtracting fractions -- because there is no need to worry about the denominators being like or unlike.Instead, all you need to do is invert (flip upside down) the divisor (second term in the division equation) and change the sign from division (÷) to multiplication (x), then multiply the dividend (first term in the division equation) by the inverted divisor.To complete the fraction division, you simply multiply the numerators of each fraction to get a new numerator and then multiply the denominators of each fraction to get a new denominator -- regardless of whether the denominators are different or the same.The following illustrates how you would divide a dividend of 1/2 by a divisor of 1/3:Step #1: Invert the DivisorStep #2: Multiply Dividend by Inverted DivisorHow to Divide Fractions and Mixed NumbersIf you need to divide a fraction by a mixed number, you first need to convert the mixed number to an improper fraction. To do that, you simply multiply the denominator by the whole number and add that product to the value of the numerator. That result then becomes the numerator of the improper fraction, while the denominator remains the same.To illustrate, here is how you would convert the mixed number 2 1/3 (two and one third) into an improper fraction:Converting a Mixed Number to a FractionOnce you have converted the mixed number to an improper fraction, you simply divide the fractions as normal.How to Divide Fractions By Whole NumbersHere again, to divide a fraction by a whole number, you first need to convert the whole number into an improper fraction. To do that you simply place the whole number over the number 1 (any non-zero number divided by 1 is equal to the number), like this:Converting a Whole Number to a FractionOnce you have converted the whole number into an improper fraction, you simply divide the fractions as explained earlier. Welcome to our Dividing Fractions by Whole Numbers page. On this page, we have a range of free printable sheets to help your child learn to divide fractions by integers, or whole numbers. Take a look at our worked examples or have a go at our practice sheets! Try our NEW quick quiz at the bottom of this page to test your skills online. We also have a calculator which will not only give you the answer, but also show you all the working out along the way! If you need support to divide fractions by other fractions, use the link below. How to Divide fractions page Quicklinks to... On this page, you will learn how to divide a fraction by a whole number, and also some practice worksheets designed to help your child master this skill. The sheets are carefully graded so that the easiest sheets come first, and the most difficult sheet is the last one. Before your child tackles dividing fractions, they should be confident with multiplying fractions, and also converting mixed fractions to improper fractions and reducing fractions to simplest form. Using these sheets will help your child to: divide a fraction by a whole number; apply their understanding of simplest form; convert an improper fraction to a mixed number. If you want to divide fractions you can use our Free Divide Fractions calculator. The calculator will help you dividing fractions by whole numbers, or fractions by other fractions or mixed numbers. The best thing about the calculator is that it also shows you all the working out along the way. Divide Fractions Calculator Frazer says "To divide a fraction by an integer, or whole numbers, follow these 4 easy steps." Step 1 Change the whole number to a fraction by putting it over a denominator of 1. If any of the fractions are mixed fractions (or mixed numbers), then first convert them into improper fractions. Step 2 Swap the numerator and denominator of the dividend fraction (the fraction after the ÷ sign) and change the operator to a 'x' instead of a '÷ ' Step 3 Multiply the numerators of the fractions together, and the denominators of the fractions together. This will give you the answer. Step 4 (Optional) You may want to convert the fraction into its simplest form or convert it back to a mixed fraction (if it is an improper fraction). For those of you who like to see the algebra: Formula for dividing a fraction by a whole number \[{a \over b} \; \div \; c \; = \; {a \over b} \; \times \; {1 \over c} \; = \; {a \over bc} \] Step 1) Put the integer over a denominator of 1. So this gives us: \[{3 \over 4} \; \div \; 6 \; = \; {3 \over 4} \; \div \; {6 \over 1} \] Step 2) Invert the dividend fraction and change the operation to multiplication. So we now have \[{3 \over 4} \; \div \; {6 \over 1} \; = \; {3 \over 4} \times {1 \over 6} \] Now multiply the fractions: \[{3 \over 4} \times {1 \over 6} \; = \; {3 \times 1 \over 4 \times 6} \; = \; {3 \over 24} \] Step 3) Simplify the answer by dividing the numerator and denominator by 3. \[{3 \over 24} \; = \; {3 \div 3 \over 24 \div 3} \; = \; {1 \over 8} \] Final answer: \[{3 \over 4} \; \div \; 6 \; = \; {1 \over 8} \] Step 1) Put the integer over a denominator of 1. So this gives us: \[{5 \over 9} \; \div \; 4 \; = \; {5 \over 9} \; \div \; {4 \over 1} \] Step 2) Invert the dividend fraction and change the operation to multiplication. So we now have \[{5 \over 9} \; \div \; {4 \over 1} \; = \; {5 \over 9} \times {1 \over 4} \] Now multiply the fractions: \[{5 \over 9} \times {1 \over 4} \; = \; {5 \times 1 \over 9 \times 4} \; = \; {5 \over 36} \] Step 3) This fraction is already in simplest form. Final answer: \[{5 \over 9} \; \div \; 4 \; = \; {5 \over 36} \] Step 1) Convert the mixed number to an improper fraction and put the integer over a denominator of 1. As an improper fraction: \[2 {2 \over 3} \; = \; {8 \over 3} \] So this gives us: \[2 {2 \over 3} \; \div \; 7 \; = \; {8 \over 3} \; \div \; {7 \over 1} \] Step 2) Invert the dividend fraction and change the operation to multiplication. So we now have \[{8 \over 3} \; \div \; {7 \over 1} \; = \; {8 \over 3} \times {1 \over 7} \] Now multiply the fractions: \[{8 \over 3} \times {1 \over 7} \; = \; {8 \times 1 \over 3 \times 7} \; = \; {8 \over 21} \] Step 3) This fraction is already in simplest form. Final answer: \[2 {2 \over 3} \; \div \; 7 \; = \; {8 \over 21} \] These sheets involve both dividing whole numbers by fractions and also dividing fractions by whole numbers. The first two sheets involve dividing by proper and improper fractions. Sheet 3 involves dividing by mixed numbers. Take a look at some more of our worksheets similar to these. The links below will take you to our support pages for multiplying and dividing fractions. All the support pages contain detailed explanations and some worked examples. The links below will take you to our worksheets for multiplying and dividing fractions. The worksheets are all carefully graded and have different levels of support for students. Here you will find a selection of Fraction worksheets designed to help your child understand how to convert an improper fraction to a mixed number. Using these sheets will help your child to: convert an improper fraction to a mixed number; convert a mixed number to an improper fraction. Convert Improper Fractions Here you will find a selection of Fraction worksheets designed to help your child understand how to convert a fraction to its simplest form. Using these sheets will help your child to: develop an understanding of equivalent fractions; know when a fraction is in its simplest form; convert a fraction to its simplest form. How to Simplify Fractions support page This quick quiz tests your understanding and skill at dividing fractions by whole numbers. Dividing Fractions by Whole Numbers Quiz How to Print or Save these sheets Need help with printing or saving? Follow these 3 steps to get your worksheets printed perfectly! How to Print or Save these sheets Need help with printing or saving? Follow these 3 steps to get your worksheets printed perfectly! Sign up for our newsletter to get free math support delivered to your inbox each month. Plus, get a seasonal math grab pack included for free! The Math Salamanders hope you enjoy using these free printable Math worksheets and all our other Math games and resources. If you have any questions or need any information about our site, please get in touch with us using the 'Contact Us' tab at the top and bottom of every page. Fraction Calc is a special calculator for multiplication, division, addition, and subtraction of two or more fractions and whole numbers. It can process multiple fractions and whole numbers at once. Then it displays the step by step solutions of whatever operation it has processed. Sometimes few people will call it fraction solver, while others may say it is a mixed number calculator or mixed fraction calculator. It is an online calculator with fraction button. As of now it can compute up to ten both fractions and mixed numbers. It is useful for all students in all grade levels. It can be used as a reference to all math teachers and even those professionals who often use fractions in their workplace or in their homes. This calculator has been designed for easy use. Adding two fractions Press any number from the numerator buttons. Press any number from the denominator buttons. Press the add (+) button. Press any number from the numerator buttons for the second fraction. Press any number from the denominator buttons for the second fraction. Press the equal (=) button to calculate the answer. Answer and solution will be displayed above. Adding three or more fractions Repeat the steps above except the last step. Press the add (+) button. Press any number from the numerator buttons for the third fraction. Press any number from the denominator buttons for the third fraction. Press the equal (=) button to calculate the answer or press add (+) button to add more fractions. The same process will be used to the fourth, fifth or any number of fractions. Just press the equal (=) button for the computation. Subtracting two, three or more fractions Follow the steps in adding fractions but instead of pressing add (+) button, press subtract (-) button. Multiplication and division of two, three or more fractions Follow the steps in adding fractions but instead of pressing add (+) button, press multiply (x) button for multiplication and divide (÷) button for division. Addition, Subtraction, Multiplication and Division of mixed numbers When dealing with mixed numbers, the important point to remember if you use this calculator is never forget to enter the whole numbers . The whole number buttons in the calculator is larger than the numerator and denominator buttons. You only need to press first the whole number button followed by fraction then you can proceed to any operation you want. Operations involving fractions, whole numbers, and mixed numbers Press the whole number button if your fraction has a whole number or you can directly press the numerator button if you don’t need whole number. You cannot press denominator button if you have not pressed whole number or denominator button. This means that you need to press the whole number or numerator button first. Once numerator button is pressed, you can no longer press whole number button. You can only press whole number button again if you delete the numerator by pressing the backspace button. Zeroes should not be pressed first. Zeroes will be pressed after non-zero numbers are pressed. Press denominator button for your denominator. Once pressed, you cannot press whole number or numerator button again. You can only press numerator button if you delete the denominator by pressing the backspace button. Select any operation you want. Press Equal button if you are done with your fraction. The solution will be displayed above. Press Backspace if you want to delete one number at a time. Press AC button to clear the fraction equation. As of now, this calculator is limited only to 10 fractions. Our Fraction Calc for android mobile phones has been released. It can process basic and complex fraction operations and can display solution both in cross-multiply method and LCD (Least Common Denominator) method. You can get it from Google Play Store. Sometimes doubts about how the calculation is being made when multiple operations are being used. Using the MDAS notation, multiplication and division has the same precedence but higher than addition and subtraction. Addition and subtraction has the same precedence. Higher precedence is being processed first. This is always the rule and has been universally followed. While with same precedence, the operation is processed from left to right. Whole Number Fraction Calculator Fraction Calc is also a whole number fraction calculator because it can deal a lot of whole numbers. Dealing with whole numbers means you have to study more and do extra steps by converting the whole numbers into a format suitable for mathematical operation. Doing mathematical operations with whole numbers means you have to do additional steps to get the correct answer. This means additional energy and burden for the people who were caught in the situation where they have to solve whole numbers and fractions. That is why several people are searching fraction and whole number calculator for the purpose of not only providing easy solutions for complex problems but also to save time and energy. Saving time and energy from certain task means that you gain extra resources to do an even more important task that would be very helpful. 3 Fraction Calculator Most of the time only two fractions are involved in any mathematical arithmetic. It is very rare to have 3 fractions involved in any operation. But if ever this is your case, then you are very fortunate that you found this tool. You can easily use this tool as 3 fraction calculator because it can absolutely solve it. That is main purpose of this tool. Some people have not ever heard this tool so they have searched 3 fraction calculator specifically. But now that his tool has been created, I guess they may no longer have the time to worry at all. Multiple Fraction Calculator Most of the calculators that have been created are limited in feature to the extent that it can only solve two fractions at a time. But Fraction Calc can even do more. It can solve up to 10 whole numbers or fractions combined. That is why many call it multiple fraction calculator. It is a very specialized calculator with whole numbers. The combination of whole number and fraction is hard to deal with but with this multiple fraction calculator the computation become easier. Adding mixed numbers, converting fraction to whole number, multiplying fractions by whole numbers, subtracting mixed numbers, and multiplying mixed fractions are among the processes this calculator can do. Advantages And Disadvantages Of Using Fraction Calculator. Advatages: It is easy to use. It saves more time and energy. There is no need for manual computation. The computed result is accurate and precise. Disadvantages: It can make you dull in fraction calculation. You will be very dependent on it in the future. You may forget the rules of computation. Fraction Operation Rules Addition and Subtraction of fractions Addition and subtraction of fraction follows the same rules. They must have the same denominators to process the selected operation. You can add or subtract the two fractions if they have the same denominator, if not; you have to create a common denominator before adding or subtracting them. Like fractions are fractions that have the same denominators. To add fractions with the same denominator add its numerator. For example, 2/5 + 1/5 = 3/5. Fractions that have different denominators are unlike fractions. To add unlike fractions you need to make them have a common denominator. The simplest way to do it is using the butterfly method. To do the butterfly method, follow the steps below. Multiply the numerator of the first fraction to the denominator of the second fraction. The result would be the first fraction numerator. Multiply the denominator of the first fraction to the denominator of the second fraction. The result would be the new denominator of the first fraction. Multiply the numerator of the second fraction with the denominator of the first fraction. The result would be the new numerator of the second fraction. Multiply the denominator of the second fraction with the denominator of the first fraction. The result is now the new denominator of the second fraction. For example: 2/3 + 3/5. 2 x 5 = 10. 3 x 5 = 15. 3 x 3 = 9. 5 x 3 = 15. The new fraction are 10/15 and 9/15. 10/15 + 9/15 = 19/15. The new fraction is 19/15. To subtract fractions with the same denominator, just subtract the numerator of the second fraction from the numerator of the first fraction. Example: 4/6 – 3/6 = 1/6. For fractions with different denominator, make them have a same denominator using the butterfly method and then do the subtraction after they have the same denominator. Multiplication and Division of fractions The rule of multiplying two fractions is straightforward. Multiply the numerator of first fraction to the numerator of the second fraction and multiply the denominator of the first fraction to the denominator of the second fraction. Example: 2/3 x 1/5 = 2/15. To divide two fractions, you must first invert the second fraction then start multiplying the two fractions. Example: 2/3 divided by 1/5 = 2/3 x 5/1 = 10/3. How To Change Improper Fraction to Mixed Number When you reduce improper fraction to its lowest term, you need to change it to mixed number. This is done by dividing the numerator to denominator. The quotient will be the whole number. The remainder will be the new numerator and the denominator will remain as is. How To Change Mixed Number To Improper Fraction In dividing or multiplying mixed numbers, you need it to change into improper fraction. This is done by multiplying the whole number to denominator then adds the current numerator. The result will be the new numerator and the denominator will remain as is. Comparing Fractions For fractions that have the same denominators, the fraction that has the biggest numerator is the larger fraction than the fraction that has smaller numerator. For fractions that have the same numerators, the fraction with the biggest denominator is smaller than the fraction that has smaller denominator. Simplifying Fractions From the topic above, we already know that there are equivalent fractions-fractions that are the same in value even if they have different numerators and denominators. Simplifying fraction means that using the smallest numerator and denominator but the same value. The fraction is in its simplest form when there is no common factor for numerator and denominator. For example, instead of using 7/14, we can use ½ which is the simplest form. Greatest Common Factor Greatest common factor is a largest number used to divide both numerator and denominator to get the simplest form of a fraction. For example, for fraction 12/30, the largest number to divide both the numerator and denominator is 6. By dividing it to 6, you will arrive to its simplest form which is 2/5. Facts About Fractions Fractions are parts of a whole. For example there is one cake for five children. So the cake is divided into five parts. Each child would receive one part of the cake. The fraction would be 1/5. Each child will receive 1/5 of cake. There are two parts of fraction. The upper half part is called numerator. The lower half part is called denominator. Numerator is the part of the whole where it is being used or currently being dealt with. There are three types of fractions: proper fraction, improper fraction, and mixed numbers. Proper fraction is a fraction where its numerator is always lesser than its denominator. Improper fraction is a fraction where its numerator is equal or greater than its denominator. Mixed Number represents whole numbers plus a fraction. Equivalent fractions are fractions that have different numerator and denominators but have the same value such as 1/2, 2/4, 7/14, 8/16, 10/20, 20/40, and 50/100. How Fraction Calc Was Created? When I was a student, I have this math subject. One of the topics was about fraction. Although this topic is challenging, it greatly astonished me why it is hard to determine if the solution is right or wrong. You have to review it a number of times in order to be certain that your solution is right. It did not happen on me only. I found out that most of the students experienced the same. So, from there on, I dream that for one way or another, I will help them. I will help them to make sure that their solution is right without going through a lot of reviews. That is why I created this calculator. This calculator was created as a reference or a guide only to make sure that the student arrive the correct answer from their fraction problems. From The Founder of FractionCalc.com Multiply the bottom number of the fraction by the whole number. 12 ÷ 3 Step 1. Multiply the bottom of the fraction by the whole number: 12 × 3 Which equals: 16 Step 2. Fraction is already as simple as possible, so no need for step 2. Answer: 12 ÷ 3 = 16 And here is how to do it with a pen and paper (press the play button): Does 12 ÷ 3 really equal 16 ? Well look at the pizzas below ... When half a pizza is divided into 3 equal parts, each person gets one sixth of a whole pizza. A Half: Divide it by 3: Answer: 16 Another example: 25 ÷ 4 Step 1. Multiply the bottom of the fraction by the whole number: 25 × 4 = 220 Step 2. Simplify the fraction: 220 = 110 Done! 34 ÷ 2 Step 1. Multiply the bottom of the fraction by the whole number: 34 × 2 = 38 You each get 38 of the block. 5935, 5936, 5937, 5938, 5939, 5579, 3580, 3581, 3582, 3583, 3584 Copyright © 2025 Rod Pierce We've updated our Privacy Policy effective December 15. Please read our updated Privacy Policy and tap \mathrm{lcm} \mathrm{gcf} \mathrm{factors} \mathrm{long\:addition} \mathrm{scientific} See All AI may present inaccurate or offensive content that does not represent Symbolab's views. View Full Notebook more / math / fraction calculator Below are multiple fraction calculators capable of addition, subtraction, multiplication, division, simplification, and conversion between fractions and decimals. Fields above the solid black line represent the numerator, while fields below represent the denominator. Mixed Numbers Calculator Simplify Fractions Calculator Decimal to Fraction Calculator Fraction to Decimal Calculator Big Number Fraction Calculator Use this calculator if the numerators or denominators are very big integers. In mathematics, a fraction is a number that represents a part of a whole. It consists of a numerator and a denominator. The numerator represents the number of equal parts of a whole, while the denominator is the total number of parts that make up said whole. For example, in the fraction of 38, the numerator is 3, and the denominator is 8. A more illustrative example could involve a pie with 8 slices. 1 of those 8 slices would constitute the numerator of a fraction, while the total of 8 slices that comprises the whole pie would be the denominator. If a person were to eat 3 slices, the remaining fraction of the pie would therefore be 58 as shown in the image to the right. Note that the denominator of a fraction cannot be 0, as it would make the fraction undefined. Fractions can undergo many different operations, some of which are mentioned below. Addition: Unlike adding and subtracting integers such as 2 and 8, fractions require a common denominator to undergo these operations. One method for finding a common denominator involves multiplying the numerators and denominators of all of the fractions involved by the product of the denominators of each fraction. Multiplying all of the denominators ensures that the new denominator is certain to be a multiple of each individual denominator. The numerators also need to be multiplied by the appropriate factors to preserve the value of the fraction as a whole. This is arguably the simplest way to ensure that the fractions have a common denominator. However, in most cases, the solutions to these equations will not appear in simplified form (the provided calculator computes the simplification automatically). Below is an example using this method. ab + cd = a×db×d + c×bd×b = ad + bcbd EX: 34 + 16 = 3×64×6 + 1×46×4 = 2224 = 1112 This process can be used for any number of fractions. Just multiply the numerators and denominators of each fraction in the problem by the product of the denominators of all the other fractions (not including its own respective denominator) in the problem. EX: 14 + 16 + 12 = 1×6×24×6×2 + 1×4×26×4×2 + 1×4×62×4×6 = 1248 + 848 + 2448 = 4448 = 1112 An alternative method for finding a common denominator is to determine the least common multiple (LCM) for the denominators, then add or subtract the numerators as one would an integer. Using the least common multiple can be more efficient and is more likely to result in a fraction in simplified form. In the example above, the denominators were 4, 6, and 2. The least common multiple is the first shared multiple of these three numbers. Multiples of 2: 2, 4, 6, 8 10, 12 Multiples of 4: 4, 8, 12 Multiples of 6: 6, 12 The first multiple they all share is 12, so this is the least common multiple. To complete an addition (or subtraction) problem, multiply the numerators and denominators of each fraction in the problem by whatever value will make the denominators 12, then add the numerators. EX: 14 + 16 + 12 = 1×34×3 + 1×26×2 + 1×62×6 = 312 + 212 + 612 = 1112 Fraction subtraction is essentially the same as fraction addition. A common denominator is required for the operation to occur. Refer to the addition section as well as the equations below for clarification. ab – cd = a×db×d – c×bd×b = ad – bcbd EX: 34 – 16 = 3×64×6 – 1×46×4 = 1424 = 712 Multiplying fractions is fairly straightforward. Unlike adding and subtracting, it is not necessary to compute a common denominator in order to multiply fractions. Simply, the numerators and denominators of each fraction are multiplied, and the result forms a new numerator and denominator. If possible, the solution should be simplified. Refer to the equations below for clarification. ab × cd = acbd EX: 34 × 16 = 324 = 18 The process for dividing fractions is similar to that for multiplying fractions. In order to divide fractions, the fraction in the numerator is multiplied by the reciprocal of the fraction in the denominator. The reciprocal of a number a is simply 1a. When a is a fraction, this essentially involves exchanging the position of the numerator and the denominator. The reciprocal of the fraction 34 would therefore be 43. Refer to the equations below for clarification. ab / cd = ab × dc = adbc EX: 34 / 16 = 34 × 61 = 184 = 92 It is often easier to work with simplified fractions. As such, fraction solutions are commonly expressed in their simplified forms. 220440 for example, is more cumbersome than 12. The calculator provided returns fraction inputs in both improper fraction form as well as mixed number form. In both cases, fractions are presented in their lowest forms by dividing both numerator and denominator by their greatest common factor. Converting between fractions and decimals: Converting from decimals to fractions is straightforward. It does, however, require the understanding that each decimal place to the right of the decimal point represents a power of 10; the first decimal place being 101, the second 102, the third 103, and so on. Simply determine what power of 10 the decimal extends to, use that power of 10 as the denominator, enter each number to the right of the decimal point as the numerator, and simplify. For example, looking at the number 0.1234, the number 4 is in the fourth decimal place, which constitutes 104, or 10,000. This would make the fraction 123410000, which simplifies to 6175000, since the greatest common factor between the numerator and denominator is 2. Similarly, fractions with denominators that are powers of 10 (or can be converted to powers of 10) can be translated to decimal form using the same principles. Take the fraction 12 for example. To convert this fraction into a decimal, first convert it into the fraction of 510. Knowing that the first decimal place represents 10-1, 510 can be converted to 0.5. If the fraction were instead 5100, the decimal would then be 0.05, and so on. Beyond this, converting fractions into decimals requires the operation of long division.