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Use this fraction simplifier to easily simplify fractions, a.k.a. reduce fractions. Convert improper fractions to mixed numbers and simplify proper fractions to their lowest terms with this fractions reducing calculator. Quick navigation: Simplifying fractions is the action of dividing the numerator and denominator (top and bottom) by the highest number that divide each of them exactly. Through simplification, a fraction becomes as simple as possible, for example 10/20 becomes 1/2, and 4/9 becomes 2/3 in its simplest form. The above are examples of fraction simplification of proper fractions in which the numerator is smaller than the denominator. In simplification of improper fractions they will be converted to a mixed number. An improper fraction is defined as one in which the numerator is greater than the denominator. Therefore, any fraction greater than 1 passed to this simplify fractions calculator will be converted to a mixed number with a whole and a fractional part. For example, 13/3 will become 4⅓ with 4 being the whole part and ⅓ the fractional. How to simplify fractions The naive method is to try to divide (exactly, without remainder) the numerator and denominator by 2,3,5,7,9... (prime numbers) until you can no longer divide both parts by the same number. For example, 24/60 can be divided by 2 to get 12/30, which can be further divided by 2 to get 6/15, which can then be divided by 3 to get 2/5. 2/5 can no longer be divided by the same number without remainder. The more advanced method is to first find the greatest common factor (GCF), also known as the greatest common divisor (GCD), then divide the numerator and denominator by it. The greatest common factor of 24 and 60 is 12, so by dividing 24/12 and 60/12 you get 2/5, exactly as using the first method. Of course, in all cases it is quicker and easier to just use our online fraction simplification calculator above. Practical examples of fraction simplification Example task #1: You read in a news source that a statistical survey revealed that 20 out of every 100 men in Spain are unemployed. How do you simplify that fraction? Solution: the fraction is 4/12, both of which are divisible by 2. Reducing the fraction results in 2/6, whose numerator and denominator are both further divisible by 3, resulting in 1/3. The reduced fraction of 4/12 is 1/3, therefore you can eat a third of the pizza. Example task #3: Convert the improper fraction 10/4 to a mixed number. Solution: Both the numerator and denominator are divisible by two, resulting in 5/2. Both of these are primes so the fraction cannot be reduced further. To convert to a mixed number, divide 5 by 2 to get 2 with a remainder of 1. This is written as the mixed number 2½ (two and a half). As you can see, having a fraction simplifier is definitely useful in reducing fractions to their simplest form. home / 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. Home›Calculators›Math Calculators›Fraction simplifier Convert improper fractions to mixed numbers in simplest form. This calculator also simplifies proper fractions by reducing to lowest terms and showing the work involved. In order to simplify a fraction there must be: A number that will divide evenly into both the numerator and denominator so it can be reduced, or The numerator must be greater than the denominator, (an improper fraction), so it can be converted to a mixed number. What is an Improper Fraction? An improper fraction is any fraction where the numerator is greater than the denominator. Examples of improper fractions are 16/3, 81/9, 525/71. How to Convert an Improper Fraction to a Mixed Number Divide the numerator by the denominator Write down the whole number result Use the remainder as the new numerator over the denominator. This is the fraction part of the mixed number. Watch the CalculatorSoup video How to Simplify Fractions on YouTube! Example: Convert the improper fraction 16/3 to a mixed number. Divide 16 by 3: 16 ÷ 3 = 5 with remainder of 1 The whole number result is 5 The remainder is 1. With 1 as the numerator and 3 as the denominator, the fraction part of the mixed number is 1/3. The mixed number is 5 1/3. So 16/3 = 5 1/3. When possible this calculator first reduces an improper fraction to lowest terms before finding the mixed number form. Example: Convert the improper fraction 45/10 to a mixed number. This calculator reduces the improper fraction to lowest terms by dividing numerator and denominator by the greatest common factor (GCF). The GCF of 45 and 10 is 5. \(\dfrac{45\div5}{10\div5} = \dfrac{9}{2}\) Use this reduced improper fraction and divide 9 by 2: 9 ÷ 2 = 4 with remainder of 1 The whole number result is 4 The remainder is 1. With 1 as the numerator and 2 as the reduced denominator, the fraction part of the mixed number is 1/2. The mixed number 4 1/2. So 45/10 = 4 1/2. Related Calculators For additional explanation of factoring numbers to find the greatest common factor (GCF) see the Greatest Common Factor Calculator. If your improper fraction numbers are large you can use the Long Division with Remainders Calculator to find whole number and remainder values when simplifying fractions by hand. To perform math operations on fractions before you simplify them try our Fractions Calculator. This calculator will also simplify improper fractions into mixed numbers. Enter a fraction below to simplify or reduce it to the simplest form. The calculator shows all of the steps to simplify a fraction to its lowest terms. GCF of 21 and 6 = 3Divide the numerator and denominator by the greatest common factor (3).21 ÷ 36 ÷ 3=72Convert to a mixed fraction by finding the whole number and remainder.7÷2=3R172=312Find the decimal by dividing the numerator by the denominator.72=7÷2=3.5 Learn how we calculated this below Add this calculator to your site A fraction is a simplified fraction when the top and bottom numbers are as small as possible while still being whole numbers. Some fractions can be reduced to an equivalent fraction in a simpler form, which means simplifying the fraction to the lowest possible terms. A simplified or reduced fraction will not have any common factors between the numerator or denominator other than 1. For example, the fractions 34 and 68 are equivalent fractions, meaning they are equal. However, 34 is in the lowest possible terms because the only common factor of 3 and 4 is 1. There are a few steps to reduce a fraction using simplification. Step One: Find the Greatest Common Factor The first step to reducing a fraction is to find the greatest common factor [GCF] between the numerator and the denominator. You'll need the greatest common factor in the second step. The greatest common factor is the largest number that is evenly divisible, or evenly goes into both the numerator and denominator with no decimals. For example, for the fraction is 68, let's find the factors of 6 and 8. The factors of 6 are [1,2,3,6]. The factors of 8 are [1,2,4,8]. The largest number common to both is 2; thus, 2 is the greatest common factor. See our greatest common factor calculator for additional information on finding the greatest common factor. Step Two: Divide by the Greatest Common Factor Armed with the greatest common factor, it's now possible to reduce the fraction. To do so, divide both the numerator and the denominator by the greatest common factor. The result is a reduced fraction. Continuing the above example, simplify the fraction 68 by dividing the numerator and denominator by the greatest common factor of 2 found in the previous example. 68 = (6 ÷ 2)(8 ÷ 2) 68 = 34 Thus, 34 is the simplified form of 68. The Easiest Way to Simplify Fractions It's fairly straightforward to reduce a fraction using the steps above, but there's an even easier way to simplify fractions using a technique known as a division ladder. To use a division ladder to simplify, start by placing the numerator and denominator next to each other, then draw an upside-down division line below and to the side of them. Then, divide each number by the smallest common number between them. For instance, if both numbers are even, then divide them both by 2. Continue doing this until there is no way to evenly divide both numbers by the same denominator. The numbers on the bottom represent the simplified fraction. Let's try using the division ladder to simplify 8/12 like the examples above. As you can see, 8/12 can be reduced to 2/3 in just a few short steps using this method. How to Simplify and Reduce Improper Fractions Some fractions are larger than 1, which is when the numerator is larger than the denominator. These are called improper fractions. When the numerator is larger than the denominator, it is often helpful to simplify the improper fractions and then reduce the fraction further into a mixed number. You can do this by dividing the numerator by the denominator, then using the quotient as the whole number and the remainder as the numerator of the new fraction with the original denominator. For example, you can simplify 128 to 32. Now let's convert this to a mixed number. 32 = 3 ÷ 2 = 1 R1 32 = 1 12 Here's a tip: our fraction to mixed fraction calculator can help convert an improper fraction like this to a mixed number. You can also use our fraction calculator to reduce a fraction. Frequently Asked Questions When you simplify a fraction, you are expressing it in its simplest form. This means that the numerator and denominator have no common factors other than one. You are reducing the fraction to its lowest terms without changing its value. A fraction is in its simplest form (or fully reduced form) when the numerator and denominator have no common factors other than 1. This means that the greatest common factor (GCF) of the numerator and denominator is 1. While reducing and simplifying are often used interchangeably, reducing a fraction typically refers to the process of dividing both the numerator and denominator by a common factor to make a fraction smaller. Simplifying typically refers to reducing a fraction to its lowest form by dividing by the greatest common factor. Fraction Balls 1 Fraction Balls 2 Type in any fraction, and this calculator will reduce it to its simplest form as either an improper fraction or a mixed number. You decide. Also, this calculator will model the original and the simplified fraction with circles. Related Links: Simplifying a math expression is like cleaning out a messy backpack. You're not throwing anything away, just putting things where they belong so you can actually find what you need. In math, that means rewriting an expression to make it clearer, not different. You're combining like terms, reducing fractions, applying rules you might've half-forgotten. The goal? Make the math easier to work with, for the steps that come next. And if you need help? The Symbolab Simplify Calculator doesn't just give you the answer. It walks you through the "how," one quiet, patient step at a time. Why Simplification Matters When you simplify an expression, you are making it easier to understand. You are cutting through the clutter so that patterns and solutions can show up more easily. Here is what simplification helps you do: Understand what the expression means: An expression like $5x$ is easier to work with than $2x + 3x$. It is the same value but in a simpler form. Spot useful patterns: A simplified expression might reveal a common factor, a perfect square, or a structure you can factor later. Solve equations more easily: Fewer terms mean fewer chances to get stuck. Simplified expressions make it easier to isolate variables and follow through on steps. Check your work: If your answer does not simplify the same way a calculator or answer key does, that is a sign to pause and look again. You might catch a mistake you would have missed. Apply math to real life: Simplification helps in everyday situations, too. It can make budgeting, scaling a recipe, or comparing two plans easier to calculate and understand. In short, simplification is not just a formality. It is what helps math make sense. How to Simplify Expressions (With Real-Life Examples) Now that we've talked about why simplification matters, let's get into the how. Because the truth is, algebra isn't just a subject you pass to graduate, it's a way of making sense of things that feel tangled. It teaches you to spot patterns, reduce clutter, and make the complex feel possible. Below are the most common simplification techniques. We'll look at each one with an example and a little real-world logic because math that stays on paper is only doing half its job. 1. Combining Like Terms What it means: A term is just one piece of a math expression, like $3x$, -7, or $2y^2$. Terms are separated by plus or minus signs, and if two terms have the same variable raised to the same power, we call them like terms. You can add or subtract them by combining their coefficients — the numbers in front. Example: $3x + 5x - 2$ $3x$ and $5x$ are like terms. Add their coefficients: $3 + 5 = 8$ So the simplified version is: $8x - 2$ In real life: Let's say pens cost x each. You buy 3 pens at one store and 5 more at another. No matter where you got them, they're still x pens. Your total cost? $3x + 5x = 8x$ Key Terms: Term: A single part of an expression, like $3x$ or $-2y^2$ Coefficient: The number in front of a variable Variable: A letter that stands in for a number Like terms: Terms with the same variable and same exponent 2. Reducing Fractions What it means: A fraction in math is just a way of saying "this divided by that." The number on top is called the numerator, and the number on the bottom is the denominator. If the top and bottom have something in common, a factor they both share,you can simplify the fraction by dividing both parts by that number or expression. Example: $6x^2 / 3x$ Divide the coefficients: $6 ÷ 3 = 2$ Divide the variables: $x^2 ÷ x = x$ So the simplified expression is: $2x$ In real life: You have 6 identical chocolate bars and 3 friends. If you want to share them equally, each friend gets 2 bars. Now, if each bar has x pieces inside, then every friend ends up with $2x$ pieces of chocolate. Sweet, right? Key Terms: Fraction: A way to represent division, with a top (numerator) and bottom (denominator) Numerator: The number above the line Denominator: The number below the line Common factor: A value that divides evenly into both the numerator and denominator 3. Using the Distributive Property What it means: The distributive property is a fancy name for something your brain probably already does. If you have something multiplied by a group such as $2(x + 4)$, you need to multiply it by everything inside the parentheses. One term on the outside gets "distributed" to each term on the inside. Wait — what are parentheses again? They are just curved brackets, like this: ( ). In math, they're used to group parts of an expression together and show what should happen first. Example: $2(x + 4)$ Distribute the 2 to each term inside: $2 × x = 2x$ $2 × 4 = 8$ So the expression becomes: $2x + 8$ In real life: Let's say you're packing 2 party favor bags. Each bag has 1 pencil and 4 candies. To figure out how many items you have in total, you multiply: 2(pencil + 4 candies) = 2 pencils + 8 candies It is just scaling up a group, math's version of bulk shopping. Key Terms: Distributive property: A rule that lets you multiply across grouped terms: $a(b + c) = ab + ac$ Parentheses: Brackets used to group terms or operations together Expression: A string of numbers, variables, and operations but no equal sign 4. Factoring Expressions What it means: Factoring is the opposite of distributing. Instead of multiplying everything out, you are working backward. You're breaking an expression into pieces — smaller expressions that multiply together to give you the original one. These smaller pieces are called factors. Factoring is like opening up a tightly packed suitcase. Everything's there, but now you can see it grouped, folded, and ready to work with. Example: $x^2 + 5x + 6$ You ask: what two numbers multiply to 6 and add to 5? The answer: 2 and 3. So you can rewrite the expression as: $(x + 2)(x + 3)$ In real life: Think about organizing your backpack. Instead of a mess of random items, you group similar things: books in one section, pencils in another. Factoring is that same idea, it makes what you have easier to manage. Key Terms: Factoring: Rewriting an expression as a product of simpler expressions Factor: A number or expression that multiplies with another to create a product Product: The result of multiplication Trinomial: A polynomial with three terms Quadratic expression: A polynomial where the highest exponent is 2 (like x^2) 5. Applying Exponent Rules What it means: An exponent tells you how many times to multiply a number or variable by itself. So x^2 just means x × x. There are a few simple rules that help you simplify expressions with exponents, especially when you're multiplying or dividing terms with the same base. It might look complicated, but it's mostly pattern recognition — once you know the rules, the math gets a lot lighter. Example: $x^5 ÷ x^2$ When you divide terms with the same base, you subtract the exponents: $x^5 ÷ x^2 = x^3$ Because you're taking away two of the x's. In real life: Say you're watching your social media account grow. If your followers double every day, and you start with x followers, after three days you've got: $x × x × x × x = x^3$ That is exponential growth. And exponent rules help you understand how fast something like that adds up. Key Terms: Exponent: A small number that tells how many times to multiply a base by itself Base: The number or variable being multiplied (in x^2, x is the base) Power: The full expression with a base and exponent, like x^3 Exponent rule: A shortcut for simplifying expressions with exponents Negative exponent: An exponent that tells you to divide instead of multiply, like $x^{-2} = 1/x^2$ 6. Removing Unnecessary Parentheses What it means: Parentheses are used in math to group things together and show what should happen first. But sometimes, once everything inside is simplified, the parentheses are just... clutter. You can remove them, as long as there's no multiplication or a minus sign waiting to change what's inside. Example: $(3x + 2) + (x - 5)$ There's no multiplication, no minus outside, so you can drop the parentheses and combine like terms: $3x + x = 4x$ $2 - 5 = -3$ Simplified expression: $4x - 3$ But be careful with subtraction: If there's a minus sign in front of the parentheses, that minus applies to everything inside. Example: $5 - (2x + 3)$ You need to distribute the negative: $5 - 2x - 3$ Then combine terms: $-2x + 2$ In real life: Parentheses are like grouping things in your planner. "Do homework (math and science)" is one thing. "Cancel (math and science)" is very different. Same in math, what's inside the parentheses might not change, but what's around them matters. Key Terms: Parentheses: Curved brackets used to group terms or expressions Group: A set of terms treated as one unit Distribute: To apply multiplication or subtraction across a group Simplify: To clean up an expression and write it in its simplest form Quick Reference: Simplifying Techniques at a Glance Technique What You're Doing Example Everyday Logic Combine Like Terms Grouping terms that share the same variable $3x + 5x = 8x$ Adding up how much of one item you have — like budgeting for pens at x each Reduce Fractions Dividing top and bottom by something they share $6x^2 / 3x = 2x$ Splitting something evenly, like sharing chocolate bars between friends Distributive Property Multiplying one term across a group in parentheses $2(x + 4) = 2x + 8$ Scaling up a set — like multiplying party favors for two bags Factoring Rewriting as multiplication of simpler expressions $x^2 + 5x + 6 = (x + 2)(x + 3)$ Repacking a messy suitcase into neat, labeled sections Exponent Rules Using shortcuts to multiply or divide powers $x^5 / x^2 = x^3$ Watching your followers grow — doubling day after day Removing Parentheses Cleaning up extra grouping when it's safe $(3x + 2) + (x - 5) = 4x - 3$ Simplifying a to-do list once you know the order of tasks Putting It All Together: Full Simplification Examples Now that you know the core techniques, let's look at how they work in real problems. These examples mix steps like distributing, factoring, reducing, and combining like terms — because in actual math class, you don't get one skill at a time. You get the whole tangle. Let's untangle it together. Example 1: Simplify $2(x + 3) + 4x - (x - 5)$ Step 1: Apply the distributive property Multiply the 2 across the first group: $2(x + 3)$ becomes $2x + 6$ Distribute the minus sign in front of the second group: $-(x - 5)$ becomes $-x + 5$ New expression: $2x + 6 + 4x - x + 5$ Step 2: Combine like terms Combine the x terms: $2x + 4x - x = 5x$ Combine the constants: $6 + 5 = 11$ Final Answer: $5x + 11$ What You Used: Distributive property Removing parentheses Combining like terms Example 2: Simplify $(3x^2 + 6x) / 3 + 2x - x^2$ Step 1: Reduce the fraction Factor the numerator: $3x^2 + 6x = 3x(x + 2)$ Cancel the 3s: $[3x(x + 2)] / 3 = x(x + 2)$ New expression: $x(x + 2) + 2x - x^2$ Step 2: Distribute Expand $x(x + 2)$ to get: $x^2 + 2x$ New expression: $x^2 + 2x + 2x - x^2$ Step 3: Combine like terms $x^2 - x^2 = 0$ $2x + 2x = 4x$ Final Answer: $4x$ What You Used: Factoring Reducing fractions Distributive property Combining like terms Exponent rules (subtracting powers) Common Mistakes Students Make When Simplifying Even when you understand the rules, it's easy to trip up while simplifying, especially when you're rushing, tired, or just trying to "get it done." Here are a few of the most common slip-ups, along with gentle reminders to help you catch them next time. Combining unlike terms: $3x + 2x^2$ can't be simplified. Those are different kinds of terms. Like trying to add apples and apple slices. Close, but not the same thing. Forgetting to distribute a negative sign: In $5 - (x + 3)$, the minus sign applies to everything inside. So it becomes $5 - x - 3$, not $5 - x + 3$. One skipped sign can change the whole outcome. Canceling terms instead of factors: In $(x^2 + x) / x$, don't just cross out the x's. You need to factor first: $x(x + 1) / x = x + 1$. Simplifying works on multiplication, not addition. Ignoring the order of operations: PEMDAS isn't just a suggestion. Do multiplication and division before addition and subtraction. $3 + 4 × 2$ is 11, not 14. Removing parentheses too soon: Parentheses aren't always just decoration. If you pull them off too early, especially near a negative, you can flip signs or lose grouping that matters. Thinking simplifying means solving: $2x + 4x = 6x$ is simplified, but it's not solved. There's no equals sign, no solution yet, just a neater expression. Using the Symbolab Simplify Calculator: A Step-by-Step Guide After working through expressions by hand, turning to a calculator might feel like a shortcut. But the Symbolab Simplify Calculator isn't here to skip steps. It's here to show you the steps: clearly and patiently. It's a learning tool, not a shortcut. Whether you're double-checking homework or trying to figure out where you went wrong, Symbolab walks you through the how, not just the what. Step 1: Enter the expression You'll find the input bar at the top of the page. You can enter your expression in a few different ways: Type it in using your regular keyboard Use the on-screen math keyboard for things like square roots, fractions, and powers Scan a handwritten problem using your camera (yes, your chicken-scratch counts) Try this example: $2(x + 3) + 4x - (x - 5)$ Step 2: Click "Go" Once you've entered your expression, hit the red Go button. Within a second or two, you'll see a simplified version of your expression appear. But don't stop there, the real learning happens just below. Step 3: Explore the steps Symbolab doesn't just give you the final result. It walks through the logic behind it: Distributing Combining like terms Reducing fractions Factoring Applying exponent rules Each step is expandable. You can trace what changed, pause when it clicks, or rewind and try again. It's like having a tutor on-call who never gets tired of explaining things. Why Use Symbolab Simplify Calculator? Symbolab is designed for more than speed. It's designed for clarity. And that makes it a smarter kind of support. It helps you check your work It shows your mistakes without judgment It teaches as it solves, step by step And it gives you a place to practice with guidance Unlike a back-of-the-book answer key, it tells you why each step matters, and that makes all the difference. Best Practices for Learning with Symbolab Simplify Calculator Try the problem on your own first Use the calculator to compare your steps Ask yourself: What did I miss? What did I get right? What did I learn? Then change a number or two and try again The more you explore, the stronger your instincts become. This is how learning works, not all at once, but through small, steady steps. Think of Symbolab like a recipe card. It shows you how to cook the thing now, so later, you won't need the card at all. Simplifying expressions isn't just about getting the answer. It's about clearing the clutter and seeing what the math is really saying. Every technique you've practiced is a tool and every time you use them, the work feels a little less messy. And when things do feel tangled, you've got Symbolab right there to help you sort it out. One line at a time. An online fraction simplifier calculator simplifies whole or mixed number, proper and improper fraction to simplest form of fraction. In simple words, this fraction reducer calculator reduces proper/improper fractions and mixed number to simplify fractions. Also, you can try this best calculator by calculator-online if you want to add, subtract, multiply, and divide 2 or 3 fractions, Well, give a read to know how to simplify fractions by hand and with the help of fraction simplifier calculator. Let's start with some basics! What is Simplify Fractions? The word fraction is the derivative of a Latin word 'Fractio' that means "to break". Therefore, fraction is the simple numerical representation of complex numbers. A fraction in simplest form is that in which the only common factor of its top number or numerator and bottom number or denominator is 1.Additionally, each whole number can also be written in fractional form as 4 can be written by means of 4 / 1. Use offraction simplifier calculator is the best way to deal with complexproper, improper and mixed fractions. Example of Simplify Fraction: If the original fraction is 12 / 4 then what is in its simplest form? 12 / 4 = on dividing by 2 = 6 / 2 = 3 / 1 However, answers of this manual calculation can be verified bysimplify fractions calculator to avoid any kind of error risk. About Fraction Simplifier Calculator: This fraction simplifier calculator allows you to simplify mixed or whole number, proper/improper fraction to its simplest form of a fraction. All you need to enter the values into the designated fields of this simplify fractions calculator to get a simplified fraction form. How to reduce a fraction with this Fraction Simplifier: Well, this calculator for reducing fractions is 100% free and quite easy to use as it is packed with user-friendly interface; just account these steps to simplify the fractions: Here are three fields given by this fraction reducer calculator: For whole or mixed number (optional) For numerator value For denominator value Input: If you want to reduce mixed number into simplest form of fraction, then you must have to enter the values in the all designated fields And, if you want to reduce improper and proper fractions into its simplest form, then you just need to enter the values for numerator and denominators into the designated boxes Outputs: Once you enter the values, it's time to hit the calculate button, this simplifying fractions calculator will generate: simplified fraction according to the given inputs Mixed number for the given inputs (only shows if you get the simplified fractions into improper fractions form) Step by step calculation corresponding to the given input values Simplified Fraction into decimal form How to Simplify Fractions? Simplifying a fraction represents a procedure to make the fraction as simple as possible. For example, if the fraction is 4 / 8 then its simplified fraction form will be: 2 / 4 and 1 / 2. There are two common methods to simplify the fractions as follows: You can divide the top and bottom numbers of given fraction by 2, 3, 5, 7,etc. Such division will be continued until you cannot go any further. For example, if the fraction is 24 / 108 then dividing it by 2 it will be transformed into 12 / 54. Now it can be further divided by 2 once again. It will be converted into 6 / 27. To make it more simple we can divide it by 3. It will be now 2 / 9. Therefore 24 / 108 = 2 / 9. Division of the top and bottom numbers of the fraction by the Greatest Common Factor can also simplify it. For example, if the fraction is 8 / 12 and GCF is 4 then the fraction will be 2 / 3. However, use of simplify fraction calculator is the best possible mean for this purpose. Also, you can use the best improper fractions to mixed numbers calculator to accurately determine the simplified whole number form of the improper fraction. FAQ's (Simplify/Reduce Fractions Into The Lowest Form): How do you simplify fractions on a calculator? Well, it is quite easy, all you need to enter mixed number or proper/improper fractions corresponding to the button "A b/c" that you can see on the scientific calculator. Also, simply fetch the online fraction simplifier calculator to get fractions into simplest form. How do you solve a fraction upon a fraction? If you want to simplify complex fractions, all you need to start by finding the inverse of the denominator that you can do simply by flipping the fraction. Right after; just multiply this new fraction by the numerator. Now, you have a single simple fraction. What is 18 divided by 30 as a fraction? 18 divided by 30 is expressed in form of fraction as 3/5. How do I calculate fractions on a calculator? First of all, you have to enter the numerator of the fraction, very next, you have to press the division key and enter the denominator. Now, simply hit the "equals" button and the result will display as a decimal. Now, you can't convert a decimal to a fraction on the calculator, but the calculator can assists you to do it with pencil and paper. How do you simplify a fraction to lowest terms? To reduce a fraction to lowest terms, all you need to divide the numerator and denominator by their GCF (Greatest Common Factor). This is also said to be as simplifying the fraction. How do you simplify 2 fractions? First of all, you have to multiply the two numerators, and then simply multiply the two denominators. Now, you ought to simplify the new fractions. Also, the fractions can be readily simplified before multiplying by factoring out the common factors in the numerator & denominator. What is 3/5 in the lowest term? When it comes to 3/5 in lowest term, it can be written in three ways: 3/5 (proper fraction as numerator smaller than denominator) 0.6 as a decimal number 60% as a percentage What is 3/12 in the lowest terms? 3/12 in the lowest form expressed as 1/4. You can also add 3/12 into the online simplify fractions calculator to get it in the lowest terms. What is 2/5 in the lowest term? 2/5 in the lowest term expressed in three ways: 2/5 (it is already in reduced form, and said to be as proper fraction as you can see that numerator is smaller than denominator) 0.4 as a decimal number 40% as a percentage How do you divide and simplify fractions? When it comes to dividing fractions, all you need to find the reciprocal (reverse the numerator and denominator) of the second fraction. Right after, you ought to multiply the two numerators. Now, just simply multiply the two denominators. Finally, all you need to simplify the fractions (if required). How do you simplify fractions with different denominators? If you have fractions with different denominators, then you simply use equivalent fractions that do have a common denominator. For this, you have to find the least common multiple (LCM) of the two denominators. So, to add fractions with unlike denominators, you have to rename the fractions with a common denominator. Finally, add and simplify! What is 1/6 in the lowest terms? 1/6 in the lowest terms: What is 2/4 in the lowest terms? 2/4 in the lowest form expressed as 1/2. What is 3/6 in simplest form? 3/6 in the simplest form expressed as 1/2. What is the lowest term for 6/10? 6/10 in the simplest form expressed as 3/5. What is 1/2 in the lowest term? 1/2 in the lowest term is: 1/2 (it can't be further simplified in a lowest term, it is a proper fraction as the numerator is smaller than denominator) 0.5 as a decimal number 50% as a percentage Takeaway: This online fraction simplifier calculator operates by simplifying complex fractions and then replacing them by simplest form of fractions. It reduces fractions rapidly and accurately as compared to manual calculations free of cost. Furthermore, this fraction simplifier helps you in academics for learning purposes. References: From the source of wikihow – By Community of editors, researchers, and specialist: How to Simplify Complex Fractions From the source of sosmath: all you need to know about reducing fractions The source of virtualnerd provided with: Fractions / Complex Fractions: how do you simplify a fraction over a fraction. The authorized of smartickmethod shows: Fractions, Learning Resources - How to Simplify Fractions: Lowest Terms Fractions