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Math worksheets consist of visuals that help students visualize different concepts and see things from a broader perspective which can enhance learning to a great extent. It also helps students in active learning as it creates an engaging learning experience with the help of a different variety of questions rather than passively consuming video and audio content. Math worksheets give students immense time flexibility and allow them to solve problems at their own pace. Math Worksheets by Topics: The links to the list of math worksheets available on different topics have been arranged alphabetically for your convenience. So pick a topic and start your learning journey! # A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Math Worksheets by Grade: Math Worksheets for Grades 1 to 10 Math worksheets are available for students of all grades from grade 1 to grade 10. Click on your grade below to access the worksheets of the topics from the grade. Topic-wise Math Worksheets The best way to learn any topic is by solving practice problems. You can find several well-organized worksheets on all mathematical topics below. Printable Free Math Worksheets - Grade 1 to 8 Math worksheets consist of a variety of questions like Multiple choice questions (MCQs), Fill in the Blanks, essay format questions, matching questions, drag and drop questions, and many more. These Grade 1 to 8 math worksheets have visual simulations which help students see things in action and get an in-depth understanding of the topics. Kindergarten Math Worksheets 1st Grade Math Worksheets 2nd Grade Math Worksheets 3rd Grade Math Worksheets 4th Grade Math Worksheets 5th Grade Math Worksheets 6th Grade Math Worksheets 7th Grade Math Worksheets 8th Grade Math Worksheets Benefits of Math worksheets Math worksheets can offer various benefits and can help in effective learning. It can help students boost their logical thinking. It also helps in the development of reasoning skills. These skills are important and can give students a lifelong advantage. These worksheets can enhance the students learning to a great extent thus giving them a strong mathematical foundation. Solving math worksheets based on different topics can also boost a student's confidence and help them score well in school as well as competitive exams. Why is Math Worksheet Important for Students? Math worksheets play a very important role in learning the concepts clearly. It helps the teacher to assign questions related to all the topics to kids in the form of worksheets. Practicing these math worksheets regularly helps students to improve their speed and accuracy by understanding the concepts clearly. Organizing the completed worksheets would help the parents to track the kid's progress. Math worksheets help the children to be active. It helps the kids to revise and give more clarity about the concepts and the kids tend to remember it always. Math worksheets consist of a dynamic arrangement of questions that leads to the understanding of every topic. It helps both the students and the parents. Little kids have extraordinary capacities of learning and learn quicker through experiential activities. Free Interactive Math Worksheets for Students, Parents, and Teachers Each math worksheet is meticulously tailored to ensure that it not only complements the learning done in school but challenges the child to excel above that. Math worksheets will be available for the full range of concepts that the child will be learning in their particular grade. With the Cuemath program, your child will get the best-in-class practice worksheets that have been expertly designed by our highly qualified curriculum team. Our math worksheets exist to achieve two goals: To facilitate a clear understanding of concepts and reinforce the importance of internalizing first principles. To aid in the retention of concepts gained via targeted practice. Math worksheets are documents available online or offline that consist of a list of practice questions on a particular topic. They are driven towards supplementing a child's learning at school and help him to improve his mathematical skills. The questions are presented in a structured way to help students develop crystal clear concepts. Is It Necessary to Use Math Worksheets? Math worksheets are an amazing way to find a host of practice sums. As kids are exposed to several different types of problems they get an idea of what kind of questions will be framed in an examination. Thus, it is advisable to incorporate math worksheets as part of your regular curriculum. Can Math Worksheets Help in Understanding Concepts? Once a child is introduced to a topic, the only way to gauge his understanding of it is by solving practice questions. Math worksheets help kids to instill crystal clear concepts as they test a child's knowledge and help them to improve in areas that might be problematic. Hence, they prove to be a good resource that children can use for instilling a robust mathematical foundation. How Can Math Worksheets Help to Boost Problem-solving Skills? Math worksheets help kids analyze problems, break them down into chunks, and then solve them. As children get conditioned to interpreting the why and how behind a question they can improve their problem-solving abilities. In addition to this, they also learn many transferable skills such as critical thinking, logic, reasoning, and analytical abilities. What is the Best Way to Attempt Math Worksheet Questions? A well-structured math worksheet has sections with a gradual increase in the level of difficulty. Hence, always solve the math worksheet in the given order of organization to get the maximum benefit and try not to skip any questions. Are Math Worksheets Useful for Competitive Exams? The purpose of math worksheets is to provide practice sums to children enabling them to master the topic within no time. Thus, these worksheets are created in a way so that irrespective of the examination, be it school or competitive, a child develops the required knowledge and skill to successfully attempt it. How Can Math Worksheets be Used to Improve Concentration Levels? Several online math worksheets are interactive with relevant images. Additionally, they are equipped with fun graphics that improve the level of engagement and motivation to solve more sums. If kids are having fun while solving worksheet questions their concentration will automatically improve. Rationalization is a process that finds application in elementary algebra, where it is used to eliminate the irrational number in the denominator. There are many rationalizing techniques which are used to rationalize the denominator. The word rationalize literally means making something more efficient. Its adoption in mathematics means making the equation reduced into its more effective and simpler form. Rationalization can be considered as the process used to eliminate a radical or an imaginary number from the denominator of an algebraic fraction. That is, remove the radicals in a fraction so that the denominator only contains a rational number. Let us recall some important terms relating to the concept of rationalization in this section. Radical A radical is an expression that uses a root, such as a square root, cube root. For example, an expression of the form: $\sqrt{a + b}$ is radical. Radicand Radicand is the term we are finding the root of. For example, in the following figure, (a + b) is the radicand. Radical Symbol The $\sqrt{\quad}$ symbol means "root of". The length of the horizontal bar is important. The length of the bar signifies variables or constants that are a part of the root function. The variables or constants that are not under the root symbol are hence not part of the root. Degree The degree is the number depicted in the figure below. 2 means square root, 3 means cube root. Further, they are referred to as 4th root, 5th root, and so on. If this is not mentioned, we take it as square root by default. Conjugate A math conjugate of any binomial means another exact binomial with the opposite sign between its two terms. For example, the conjugate of (x + y) is (x - y) or vice versa. Thus, both these binomials are conjugates of each other. Surds are irrational numbers that cannot be further simplified in their radical form. For example, an irrational number $\sqrt{8}$ can be simplified further as $2\sqrt{2}$, whereas $\sqrt{2}$ cannot be simplified any further. Thus $\sqrt{2}$ is a surd. Examples of a monomial radical: $\sqrt{6}$, $\sqrt[3]{2}$, $\sqrt{\sqrt[3]{2}}$ Examples of a binomial radical: $\sqrt{3 + \sqrt{6}}$, $1 - \sqrt{2}$ The procedure to rationalize an expression depends on the radical if that is monomial or binomial. Rationalizing a Monomial Radical To rationalize a surd or radical, in the denominator, different steps are to be followed depending upon the degree of the polynomial or the fact that if the radical is a monomial or polynomial. Any polynomial with only one term is called a monomial. $\sqrt{\sqrt[2]{x}}$, $\sqrt{\sqrt[7]{x}}$, $\sqrt{\sqrt[3]{7^2}}$, etc. could be in the denominators. Procedure: 1) Suppose the denominator contains a radical, as in this fraction: $\frac{a}{\sqrt{b}}$. Here, the radical must be multiplied and divided by \sqrt{b} and further simplified. 2) For a polynomial with a monomial radical in the denominator, say of the form, $\frac{\sqrt{ax^m}}{\sqrt{bx^n}}$, such that $n < m$, the fraction must be multiplied by a quotient containing $\sqrt{\frac{bx^{m-n}}{ax^m}}$, both in the numerator and denominator. This gives us the result $\frac{\sqrt{ax^m} \sqrt{\frac{bx^{m-n}}{ax^m}}}{\sqrt{bx^n} \sqrt{\frac{bx^{m-n}}{ax^m}}}$, which can be replaced by $\frac{\sqrt{ax^m} \sqrt{bx^{m-n}}}{\sqrt{bx^n} \sqrt{ax^m}}$. Example: Let us rationalize the fraction: $\frac{2\sqrt{7}}{\sqrt{3}}$. Step 1. Examine the fraction - The given fraction has a monomial radical $\sqrt{7}$ in the denominator that needs to be rationalized. Note that the denominator can have a radical, so you don't need to worry about the numerator while examining the fraction or simplifying it. Step2. Multiply the fraction in the numerator and denominator by $\sqrt{3}$. $\frac{2\sqrt{7}}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{7} \sqrt{3}}{\sqrt{3} \sqrt{3}} = \frac{2\sqrt{21}}{3}$ Step3. Simplify the expression as needed. $\frac{2\sqrt{21}}{3}$ Rationalizing a Binomial Radical If the denominator has a radical expression of the form $\sqrt{ax + b}$ or $\sqrt{ax + b}$, the fraction must be multiplied by the conjugate of the expression i.e., $\sqrt{ax - b}$ or $\sqrt{ax - b}$. For example, let us rationalize $\frac{1}{\sqrt{2} + \sqrt{3}}$. Step 1. Examine the fraction - The fraction has a radical in the form of a cube root in the denominator. Step2. Multiply the numerator and denominator by a factor that makes the exponent of the denominator 1. In this case, that factor would be $\sqrt[3]{5 - \frac{2}{3}}$. $\frac{1}{\sqrt[3]{5 - \frac{2}{3}}} \times \frac{\sqrt[3]{5 + \frac{2}{3}}}{\sqrt[3]{5 + \frac{2}{3}}} = \frac{\sqrt[3]{(5 - \frac{2}{3})(5 + \frac{2}{3})}}{\sqrt[3]{(5 - \frac{2}{3})(5 + \frac{2}{3})}}$ When you look at the definition of "rationalize", it will become clearer as to what exactly rationalizing a denominator means. The numbers like $\frac{1}{\sqrt{2}}$, $\frac{5}{11}$ and 0.25 are all rational numbers i.e., they can be expressed as a ratio of two integers like $\frac{1}{\sqrt{2}}$, $\frac{5}{11}$, $\frac{1}{2}$, $\frac{1}{4}$, etc. respectively. Whereas, some radicals are irrational numbers because they cannot be represented as the ratio of two integers. Thus, the denominator needs to be rationalized to make the expression become a rational number. The following table gives the equivalent rational values of an irrational number. Irrational Rational $\frac{1}{\sqrt{2}}$, $\frac{1}{\sqrt{3}}$, $\frac{1}{\sqrt{5}}$, $\frac{1}{\sqrt{7}}$, $\frac{1}{\sqrt{11}}$, $\frac{1}{\sqrt{13}}$, $\frac{1}{\sqrt{17}}$, $\frac{1}{\sqrt{19}}$, $\frac{1}{\sqrt{23}}$, $\frac{1}{\sqrt{29}}$, $\frac{1}{\sqrt{31}}$, $\frac{1}{\sqrt{37}}$, $\frac{1}{\sqrt{41}}$, $\frac{1}{\sqrt{43}}$, $\frac{1}{\sqrt{47}}$, $\frac{1}{\sqrt{53}}$, $\frac{1}{\sqrt{59}}$, $\frac{1}{\sqrt{61}}$, $\frac{1}{\sqrt{67}}$, $\frac{1}{\sqrt{71}}$, $\frac{1}{\sqrt{73}}$, $\frac{1}{\sqrt{79}}$, $\frac{1}{\sqrt{83}}$, $\frac{1}{\sqrt{89}}$, $\frac{1}{\sqrt{97}}$, $\frac{1}{\sqrt{101}}$, $\frac{1}{\sqrt{103}}$, $\frac{1}{\sqrt{107}}$, $\frac{1}{\sqrt{113}}$, $\frac{1}{\sqrt{119}}$, $\frac{1}{\sqrt{127}}$, $\frac{1}{\sqrt{131}}$, $\frac{1}{\sqrt{137}}$, $\frac{1}{\sqrt{143}}$, $\frac{1}{\sqrt{149}}$, $\frac{1}{\sqrt{157}}$, $\frac{1}{\sqrt{163}}$, $\frac{1}{\sqrt{167}}$, $\frac{1}{\sqrt{173}}$, $\frac{1}{\sqrt{179}}$, $\frac{1}{\sqrt{181}}$, $\frac{1}{\sqrt{187}}$, $\frac{1}{\sqrt{193}}$, $\frac{1}{\sqrt{197}}$, $\frac{1}{\sqrt{211}}$, $\frac{1}{\sqrt{223}}$, $\frac{1}{\sqrt{227}}$, $\frac{1}{\sqrt{229}}$, $\frac{1}{\sqrt{233}}$, $\frac{1}{\sqrt{239}}$, $\frac{1}{\sqrt{241}}$, $\frac{1}{\sqrt{247}}$, $\frac{1}{\sqrt{251}}$, $\frac{1}{\sqrt{257}}$, $\frac{1}{\sqrt{263}}$, $\frac{1}{\sqrt{269}}$, $\frac{1}{\sqrt{271}}$, $\frac{1}{\sqrt{277}}$, $\frac{1}{\sqrt{281}}$, $\frac{1}{\sqrt{283}}$, $\frac{1}{\sqrt{287}}$, $\frac{1}{\sqrt{293}}$, $\frac{1}{\sqrt{299}}$, $\frac{1}{\sqrt{307}}$, $\frac{1}{\sqrt{311}}$, $\frac{1}{\sqrt{313}}$, $\frac{1}{\sqrt{317}}$, $\frac{1}{\sqrt{323}}$, $\frac{1}{\sqrt{329}}$, $\frac{1}{\sqrt{331}}$, $\frac{1}{\sqrt{337}}$, $\frac{1}{\sqrt{343}}$, $\frac{1}{\sqrt{347}}$, $\frac{1}{\sqrt{353}}$, $\frac{1}{\sqrt{359}}$, $\frac{1}{\sqrt{367}}$, $\frac{1}{\sqrt{371}}$, $\frac{1}{\sqrt{373}}$, $\frac{1}{\sqrt{377}}$, $\frac{1}{\sqrt{383}}$, $\frac{1}{\sqrt{389}}$, $\frac{1}{\sqrt{397}}$, $\frac{1}{\sqrt{401}}$, $\frac{1}{\sqrt{403}}$, $\frac{1}{\sqrt{407}}$, $\frac{1}{\sqrt{413}}$, $\frac{1}{\sqrt{419}}$, $\frac{1}{\sqrt{421}}$, $\frac{1}{\sqrt{427}}$, $\frac{1}{\sqrt{431}}$, $\frac{1}{\sqrt{433}}$, $\frac{1}{\sqrt{437}}$, $\frac{1}{\sqrt{443}}$, $\frac{1}{\sqrt{449}}$, $\frac{1}{\sqrt{457}}$, $\frac{1}{\sqrt{461}}$, $\frac{1}{\sqrt{463}}$, $\frac{1}{\sqrt{467}}$, $\frac{1}{\sqrt{473}}$, $\frac{1}{\sqrt{479}}$, $\frac{1}{\sqrt{481}}$, $\frac{1}{\sqrt{487}}$, $\frac{1}{\sqrt{491}}$, $\frac{1}{\sqrt{493}}$, $\frac{1}{\sqrt{497}}$, $\frac{1}{\sqrt{503}}$, $\frac{1}{\sqrt{509}}$, $\frac{1}{\sqrt{511}}$, $\frac{1}{\sqrt{517}}$, $\frac{1}{\sqrt{521}}$, $\frac{1}{\sqrt{523}}$, $\frac{1}{\sqrt{527}}$, $\frac{1}{\sqrt{533}}$, $\frac{1}{\sqrt{539}}$, $\frac{1}{\sqrt{541}}$, $\frac{1}{\sqrt{547}}$, $\frac{1}{\sqrt{551}}$, $\frac{1}{\sqrt{553}}$, $\frac{1}{\sqrt{557}}$, $\frac{1}{\sqrt{563}}$, $\frac{1}{\sqrt{569}}$, $\frac{1}{\sqrt{571}}$, $\frac{1}{\sqrt{577}}$, $\frac{1}{\sqrt{581}}$, $\frac{1}{\sqrt{583}}$, $\frac{1}{\sqrt{587}}$, $\frac{1}{\sqrt{593}}$, $\frac{1}{\sqrt{599}}$, $\frac{1}{\sqrt{601}}$, $\frac{1}{\sqrt{603}}$, $\frac{1}{\sqrt{607}}$, $\frac{1}{\sqrt{613}}$, $\frac{1}{\sqrt{619}}$, $\frac{1}{\sqrt{621}}$, $\frac{1}{\sqrt{623}}$, $\frac{1}{\sqrt{627}}$, $\frac{1}{\sqrt{631}}$, $\frac{1}{\sqrt{633}}$, $\frac{1}{\sqrt{637}}$, $\frac{1}{\sqrt{643}}$, $\frac{1}{\sqrt{649}}$, $\frac{1}{\sqrt{653}}$, $\frac{1}{\sqrt{659}}$, $\frac{1}{\sqrt{661}}$, $\frac{1}{\sqrt{667}}$, $\frac{1}{\sqrt{671}}$, $\frac{1}{\sqrt{673}}$, $\frac{1}{\sqrt{677}}$, $\frac{1}{\sqrt{683}}$, $\frac{1}{\sqrt{689}}$, $\frac{1}{\sqrt{691}}$, $\frac{1}{\sqrt{697}}$, $\frac{1}{\sqrt{703}}$, $\frac{1}{\sqrt{709}}$, $\frac{1}{\sqrt{711}}$, $\frac{1}{\sqrt{717}}$, $\frac{1}{\sqrt{721}}$, $\frac{1}{\sqrt{723}}$, $\frac{1}{\sqrt{727}}$, $\frac{1}{\sqrt{733}}$, $\frac{1}{\sqrt{739}}$, $\frac{1}{\sqrt{741}}$, $\frac{1}{\sqrt{747}}$, $\frac{1}{\sqrt{751}}$, $\frac{1}{\sqrt{753}}$, $\frac{1}{\sqrt{757}}$, $\frac{1}{\sqrt{763}}$, $\frac{1}{\sqrt{769}}$, $\frac{1}{\sqrt{771}}$, $\frac{1}{\sqrt{777}}$, $\frac{1}{\sqrt{781}}$, $\frac{1}{\sqrt{783}}$, $\frac{1}{\sqrt{787}}$, $\frac{1}{\sqrt{793}}$, $\frac{1}{\sqrt{799}}$, $\frac{1}{\sqrt{801}}$, $\frac{1}{\sqrt{803}}$, $\frac{1}{\sqrt{807}}$, $\frac{1}{\sqrt{813}}$, $\frac{1}{\sqrt{819}}$, $\frac{1}{\sqrt{821}}$, $\frac{1}{\sqrt{823}}$, $\frac{1}{\sqrt{827}}$, $\frac{1}{\sqrt{833}}$, $\frac{1}{\sqrt{839}}$, $\frac{1}{\sqrt{841}}$, $\frac{1}{\sqrt{847}}$, $\frac{1}{\sqrt{851}}$, $\frac{1}{\sqrt{853}}$, $\frac{1}{\sqrt{857}}$, $\frac{1}{\sqrt{863}}$, $\frac{1}{\sqrt{869}}$, $\frac{1}{\sqrt{871}}$, $\frac{1}{\sqrt{877}}$, $\frac{1}{\sqrt{881}}$, $\frac{1}{\sqrt{883}}$, $\frac{1}{\sqrt{887}}$, $\frac{1}{\sqrt{893}}$, $\frac{1}{\sqrt{899}}$, $\frac{1}{\sqrt{901}}$, $\frac{1}{\sqrt{903}}$, $\frac{1}{\sqrt{907}}$, $\frac{1}{\sqrt{913}}$, $\frac{1}{\sqrt{919}}$, $\frac{1}{\sqrt{921}}$, $\frac{1}{\sqrt{923}}$, $\frac{1}{\sqrt{927}}$, $\frac{1}{\sqrt{933}}$, $\frac{1}{\sqrt{939}}$, $\frac{1}{\sqrt{941}}$, $\frac{1}{\sqrt{947}}$, $\frac{1}{\sqrt{951}}$, $\frac{1}{\sqrt{953}}$, $\frac{1}{\sqrt{957}}$, $\frac{1}{\sqrt{963}}$, $\frac{1}{\sqrt{969}}$, $\frac{1}{\sqrt{971}}$, $\frac{1}{\sqrt{977}}$, $\frac{1}{\sqrt{981}}$, $\frac{1}{\sqrt{983}}$, $\frac{1}{\sqrt{987}}$, $\frac{1}{\sqrt{993}}$, $\frac{1}{\sqrt{999}}$. Rationalization can be considered as the process used to eliminate a radical or imaginary number from the denominator of an algebraic fraction. That is, remove the radicals in a fraction so that the denominator only contains a rational number. A radical is an expression that uses a root, such as a square root, cube root. For example, an expression of the form: $\sqrt{a + b}$ is radical. A math conjugate of any binomial means another exact binomial with the opposite sign between its two terms Example 1: Rationalize: $\frac{1}{\sqrt{3} + \sqrt{10}}$ Solution: The given fraction has a binomial radical, $\sqrt{3} + \sqrt{10}$ in the denominator that needs to be rationalized. Multiplying both the numerator and denominator by the conjugate of the binomial radical i.e., $\sqrt{3} - \sqrt{10}$. We get, $\frac{1}{\sqrt{3} + \sqrt{10}} \times \frac{\sqrt{3} - \sqrt{10}}{\sqrt{3} - \sqrt{10}} = \frac{\sqrt{3} - \sqrt{10}}{(\sqrt{3})^2 - (\sqrt{10})^2} = \frac{\sqrt{3} - \sqrt{10}}{3 - 10} = \frac{\sqrt{3} - \sqrt{10}}{-7} = \frac{\sqrt{10} - \sqrt{3}}{7}$ Example 2: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{5}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{5}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{5}$. We get, $\frac{1}{\sqrt{2} + \sqrt{5}} \times \frac{\sqrt{2} - \sqrt{5}}{\sqrt{2} - \sqrt{5}} = \frac{\sqrt{2} - \sqrt{5}}{(\sqrt{2})^2 - (\sqrt{5})^2} = \frac{\sqrt{2} - \sqrt{5}}{2 - 5} = \frac{\sqrt{2} - \sqrt{5}}{-3} = \frac{\sqrt{5} - \sqrt{2}}{3}$ Example 3: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 4: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 5: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 6: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 7: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 8: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 9: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 10: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 11: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 12: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 13: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 14: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 15: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 16: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. 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Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 19: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. 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Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 22: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 23: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 24: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{2} - \sqrt{3}}{(\sqrt{2})^2 - (\sqrt{3})^2} = \frac{\sqrt{2} - \sqrt{3}}{2 - 3} = \frac{\sqrt{2} - \sqrt{3}}{-1} = \sqrt{3} - \sqrt{2}$ Example 25: Rationalize the given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$. Solution: The given fraction, $\frac{1}{\sqrt{2} + \sqrt{3}}$ has radical in both the terms of the denominator that need to be eliminated. Multiplying the numerator and denominator by the conjugate of the fraction, $\sqrt{2} - \sqrt{3}$. We get, $\frac{1}{\sqrt{2} + \sqrt{3}} \times \frac{\sqrt{$

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