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This Linear Equations Worksheet is specifically designed for 7th-grade students. It provides a comprehensive set of exercises and problems to help students master the concept of linear equations. With a focus on entity and subject, this worksheet ensures that students gain a deep understanding of solving equations with one variable and interpreting their solutions. Whether you are a teacher looking to challenge your students or a parent seeking additional practice for your child, this worksheet is an ideal resource to reinforce and enhance their skills in linear equations. 15 Images of Linear Equations Worksheet 7th Grade Solving Algebra Equations Worksheets 8th Grade Math Practice Worksheets 2 Step Algebra Equations Worksheets 1 Step Word Problems Worksheets Slope-Intercept Form Worksheet Two-Step Equations Worksheet Literal Equations Worksheet Answer Key Proportional Relationships Table Graph Mickey Mouse Coordinate Plane Graph Mathematical Inequality GCF and LCM Word Problems Worksheet Grade 6 GCF and LCM Word Problems Worksheet Grade 6 GCF and LCM Word Problems Worksheet Grade 6 GCF and LCM Word Problems Worksheet Grade 6 GCF and LCM Word Problems Worksheet Grade 6 Understanding linear equations is crucial for students, and with our Linear Equations Worksheet for 7th Grade, you can find an excellent resource to aid in their learning.What are the benefits of using a linear equations worksheet for 7th-grade students? Using a linear equations worksheet for 7th-grade students can help them practice solving equations, develop critical thinking skills, and improve their understanding of algebraic concepts. It can also reinforce problem-solving abilities and prepare them for more advanced math courses. How can a linear equations worksheet help improve students' understanding and skills in solving algebraic problems? A linear equations worksheet can help improve students' understanding and skills by providing practice problems that focus on solving equations involving one variable, enabling them to develop their problem-solving abilities and become more proficient in algebraic techniques. The worksheet can reinforce the concept of linear relationships and enhance their ability to analyze and interpret them. Are there any specific strategies or techniques incorporated in a linear equations worksheet to enhance learning and problem-solving abilities? Yes, a linear equations worksheet includes techniques such as providing clear step-by-step instructions and gradually increasing difficulty levels to enhance learning and problem-solving abilities. It may incorporate real-life problems and examples to help students understand the practical applications of linear equations. Can a linear equations worksheet be used as an effective tool for independent practice and self-assessment? How? Yes, a linear equations worksheet can be an effective tool for independent practice and self-assessment as it allows students to practice solving linear equations on their own, providing immediate feedback on their progress and areas of improvement. Are there any additional resources or activities that can be used alongside a linear equations worksheet to reinforce learning and provide a well-rounded understanding of the topic? Yes, additional resources such as online tutorials, interactive games, and real-life examples can be helpful in reinforcing learning and providing a well-rounded understanding of linear equations. Engaging in activities like group problem-solving exercises, creating graphs and charts, and participating in classroom discussions can also enhance comprehension of the topic. Some of informations, names, images and video detail mentioned are the property of their respective owners & source. This week's beGalileo Playbook is out! Free Math, English, Logic & Art activities - screen-free fun! The first equation family that many students learn about is linear equations. Linear equations have many applications in the real-world, which can make for a really great set of word problems! As a student studying algebra, you will encounter many linear equations word problems. That’s why I have put together this linear equations word problems worksheet with solutions! My hope is that this linear equation word problems worksheet and answer key help you deepen your understanding of linear equations and linear systems! A linear equation is an algebraic equation where the highest power on the variable is one. When graphed, a linear equation will produce a straight line. There are a few ways that we can write linear equations, with two of the most common being slope-intercept form and standard form. Slope-intercept form is best way to identify the slope of the line and the y-intercept of the line. In general, the equation of a line in slope-intercept form is written as: $$y=ax+b$$ In this form, a represents the slope of the line and b represents the y-intercept of the line. Equations of lines in standard form are easy to recognize because it is a uniformly recognized form of a line. Standard form allows for easy comparison of coefficients. When two linear equations are in standard form, you can quickly compare the coefficients of x and y. In general, the standard form of a line is written as: $$Ax+By=C$$ Note that A and B do not represent the slope of the line or the y-intercept in this form. Instead, A and B are simply constants. Any set of word problems relating to linear equations will ask you to solve an equation of some sort. However, there are many different types of solving equations problems that you will encounter as you explore linear equations word problems. Let’s take a look at a few different types to make sure you know what to expect when you check out the linear equation word problems worksheet with solutions below. One of the simplest equation problems that you can solve is a two-step equation. A two-step equation requires you to perform just two steps in order to determine the unique solution to the linear equation. The first step is to identify the side of the equation with the unknown variable. Your goal will be to isolate this variable (or get it by itself). Consider the following example: $$9=2x-5$$ In this example, the variable is on the right-hand side of the equation. To isolate x, we “undo” the operations on the right-hand side of the equation using inverse operations. This just means doing whatever the opposite operation is. We can apply order of operations in reverse to start with the subtraction and then deal with the multiplication. Adding 5 to both sides and then dividing by 2 will result in: $$\begin{split} 9+5&=2x-5+5 \\ \\ 14 &= 2x \\ \\ \frac{14}{2} &= \frac{2x}{2} \\ \\ 7 &= x \end{split} $$ This shows that the value of the unknown variable here is x = 7. This is a unique solution that will satisfy the equation. If you want to learn more about finding the solution of linear equations and explore multi-step equations that use the distributive property, check out these equation solving worksheets! Systems of linear equations are another type of problem that you will see on the linear equations word problems worksheet linked below. A system of linear equations involves two (or more!) linear equations that intersect in some way. There are a few different ways that linear equations can intersect: Once at a single point of intersection Never as a result of the lines being parallel Always as a result of the lines being on top of one another When solving a system of linear equations, your goal is to determine both unknown variables. If the lines intersect, the solution to the system will be the point of intersection for the lines. When given a linear equation, we can find the point of intersection between it and a second equation using a few different methods. I made a video on the substitution method and a video on the elimination method to help you understand these strategies for solving systems before you apply them to word problems involving systems of equations. A linear equation word problem involves a real-world situation or scenario that can be solved by setting up and solving linear equations. The equations that are used model the relationships between different quantities in the real-world scenario. The topics of these problems vary, ranging from applications in science and physics (ie. calculate the speed of the boat) to business applications (ie. how many sales are required to break even?). The problems that you encounter will also vary in depth and difficulty. In my teaching experience, students tend to struggle with word problems because it isn’t always immediately clear what is being asked. I have seen many students feel very confident in their equation solving skills, yet they still struggle when it comes to solving linear equation word problems. One reason for this is that you aren’t always given equations from the start while solving word problems. During my time as a high school math teacher, I have come across a few tips for word problems that I think will help you solve linear equation word problems successfully. To begin, the first step should always be to define two variables. Read the question carefully and think about the quantities involved. Use variables to represent these quantities. The second step should be writing an equation that models the scenario. Depending on the problem, you may need to write a second equation as well. Lastly, think about what the problem is asking you to find. For example, are you looking for the values of two unknown variables? If so, you are likely going to be setting up and solving a system of linear equations. If you are being asked for the value of a single variable, the chances are you will be solving a single linear equation. Now that you have a basic understanding of the concepts involved in solving linear equations word problems, it’s time to try a few! My goal here is to provide you with a worksheet that you can use to practice and feel confident that you understand linear equations word problems! While I was writing this worksheet, I made sure to include a wide variety of problems that range in difficulty. You will see a few simpler problems involving a two-step equation or multi-step equations, but you will also see a few problems that involve systems of linear equations. After solving each word problem, be sure to check the answer key to verify that you fully understand the process used to set up the problem and solve it. Reflecting on your understanding is an important part of developing comfort with any given math concept! Click below to download the linear equations word problems worksheet with solutions! Being able to read a real-world algebra problem and set up a linear equation (or a system of linear equations) to solve it is a very challenging skill. In my experience as a math teacher, many students struggle with this concept, even if they fully understand the mathematics that the problem requires. This is the main reason that I put together this linear equation word problems worksheet with solutions. My goal is to provide you with a set of word problems that you can use to check your understanding of solving linear equations in the real-world. I hope you found this practice worksheet helpful as you continue your studies of algebra and linear equations! If you are looking for more linear equations math worksheets in PDF formats, check out my collection of solving linear inequalities worksheets and this linear inequality word problems worksheet. Did you find this linear equation word problems worksheet with solutions helpful? Share this post and subscribe to Math By The Pixel on YouTube for more helpful mathematics content! Printable “Algebra” worksheets: Write Equations Using Symbols Write Linear & Nonlinear Expressions Write & Solve Linear Equations Solve Linear Equations (Distributive) Solve Linear Equations in Disguise Solve Linear Equations Word Problems Examples, solutions, videos, and worksheets to help Grade 7 and Grade 8 learn how to write and solve linear equation word problems. How to solve linear equation word problems? Solving linear equation word problems involves translating the problem from words into a mathematical equation and then solving that equation. Here‘s a step-by-step guide: Read the Problem Carefully Understand what the problem is asking. Identify the key information provided in the problem. Assign variables to the unknown quantities you’re trying to find. Translate the words into a mathematical equation using the variable(s) you defined. Identify relationships such as “sum,” “difference,” “product,” and “quotient” to form the equation. Use algebraic methods to solve the equation for the unknown variable(s). This might involve adding, subtracting, multiplying, dividing, or using the distributive property. Substitute your solution back into the original problem to ensure it satisfies all conditions. Provide the final answer in the context of the problem. Have a look at this video if you need to review how to solve “linear equations word problems”. Linear Equations Word Problems Click on the following worksheet to get a printable pdf document. Scroll down the page for more Solve linear equations word problems Worksheets. More Solve linear equations word problems Worksheets Printable (Answers on the second page.) Solve linear equations word problems Worksheet #1 Solve linear equations word problems Worksheet #2 Solve linear equations word problems Worksheet #3 Solve linear equations word problems Worksheet #4 Solve linear equations word problems Worksheet #5 Solve linear equations word problems More Printable Worksheets Try out our new and fun Fraction Concoction Game. Add and subtract fractions to make exciting fraction concoctions following a recipe. There are four levels of difficulty: Easy, medium, hard and insane. Practice the basics of fraction addition and subtraction or challenge yourself with the insane level. We welcome your feedback, comments and questions about this site or page. Please submit your feedback or enquiries via our Feedback page. Home » Algebra » Linear Equations Word Problems Worksheets The free printables in this post present pupils with a set of word problems you need to answer by determining the linear equation represented by each. WELCOME TO THE WORLD OF MATHEMATICS Linear Equations Rules to Solve Linear Equation Rules of Transposition Procedure to Solve Linear Equation Linear Equation Word Problem Linear Equation Test Linear Equation Worksheet Answer Sheet Linear Equations An equation containing only one variable having power 1 is known as linear equation. Let's see some examples. 2p + 4 = 8, 5 − 3y = -7, 2a⁄5 − 4 = 6 All the above 3 linear equations are having only one variable and having power 1. Rules to Solve Linear Equation We must follow certain rules to find out the value of a variable of a given linear equation and the rules are given below. We can add same number to both sides of an equation We can subtract same number from both sides of an equation We can multiply same nonzero number to both sides of an equation We can divide same nonzero to both sides of an equation Rules of Transposition A term can be transposed from one side of the equation to the other side by changing its sign. Let's see some examples. Example 1. 5b − 3 = 12 The above linear equation can be written as => 5b = 12 + 3 Transposing −3 from LHS to RHS by changing it's sign to +3. Example 2. 5q + 5 = 19 − 2q The above linear equation can be written as => 5q + 2q = 19 − 5 Here we have transpose 5 from LHS to RHS by changing it's sign to −5. Similarly, we have transpose -2q from RHS to LHS by changing it's sign to +2q. Procedure to Solve Linear Equation Simplify both sides by removing group symbols and collecting like terms Remove fractions by multiplying both sides by appropriate factor Arrange all the variable terms on one side and all constant terms on the other side Make the coefficient of the variable as 1 Let's see some examples. Example 1. Solve 3m + 5 = 25 − 2m. Solution. 3m + 5 = 25 − 2m => 3m + 2m = 25 − 5 => 5m = 20 => m = 20 ÷ 5 => m = 4 Example 2. Solve 2(p − 1) = p + 12. Solution. 2(p − 1) = p + 12 => 2p − 2 = p + 12 => 2p − p = 12 + 2 => p = 14 Example 3. Solve 5n − 4⁄5 = 20. Solution. 5n − 4⁄5 = 20 Multiply both sides by 5. => 25n − 4 = 100 => 25n = 100 + 4 => 25n = 104 => n = 104 ÷ 25 => n = 204⁄5 Linear Equation Word Problem Problem stated in words are known as word problems. Solving word problem consists two steps. First step is translating the words of the problem into an algebraic equation. Second step is solving the equation. Let's see some examples. Example 1. If 7 is added to three times of a number, then the result is 28. Find the number. Solution. Let's assume the number is p. As per the word problem given, linear equation will be 3p + 7 = 28 => 3p = 28 − 7 => 3p = 21 => p = 21 ÷ 3 => p = 7 Hence, the number is 7. Example 2. Find the three consecutive odd numbers whose sum is 105. Solution. Let's consider the smallest, odd number is equal to m. Next two odd numbers are m+2 and m+4. According to the given word problem following linear equation can be formed. m + m + 2 + m + 4 = 105 => 3m + 4 = 105 => 3m = 99 => m = 99 ÷ 3 => m = 33 Hence, the required consecutive odd numbers are 33, 35 and 37. Example 3. The cost of 3 notebooks and 5 similar pens is Rs. 460. If the notebook cost is Rs. 20 more than the pen, then find the cost of each. Solution. Let's consider cost of the pen = q Then, cost of the notebook = q + 20 So, the linear equation will be 3(q + 20) + 5q = 460 => 3q + 60 + 5q = 460 => 8q + 60 = 460 => 8q = 400 => q = 400 ÷ 8 => q = 50 Hence, cost of the pen and notebook is Rs. 50 and Rs. 70 respectively. Linear Equation Test Linear Equation - 1 Linear Equation - 2 Linear Equation Worksheet Linear Equation Worksheet - 1 Linear Equation Worksheet - 2 Linear Equation Worksheet - 3 Answer Sheet Linear-Equation-AnswerDownload the pdf Copyright © 2025 LetsPlayMaths.com. All Rights Reserved. Email: feedback@letsplaymaths.com Worked-out word problems on linear equations with solutions explained step-by-step in different types of examples. There are several problems which involve relations among known and unknown numbers and can be put in the form of equations. The equations are generally stated in words and it is for this reason we refer to these problems as word problems. With the help of equations in one variable, we have already practiced equations to solve some real life problems. Steps involved in solving a linear equation word problem: ● Read the problem carefully and note what is given and what is required and what is given. ● Denote the unknown by the variables as x, y, ……. ● Translate the problem to the language of mathematics or mathematical statements. ● Form the linear equation in one variable using the conditions given in the problems. ● Solve the equation for the unknown. ● Verify to be sure whether the answer satisfies the conditions of the problem. 1. The sum of two numbers is 25. One of the numbers exceeds the other by 9. Find the numbers. Solution:Then the other number = x + 9Let the number be x. Sum of two numbers = 25According to question, x + x + 9 = 25⇒ 2x + 9 = 25⇒ 2x = 25 - 9 (transposing 9 to the R.H.S changes to -9) ⇒ 2x = 16⇒ 2x/2 = 16/2 (divide by 2 on both the sides) ⇒ x = 8Therefore, x + 9 = 8 + 9 = 17Therefore, the two numbers are 8 and 17.2.The difference between the two numbers is 48. The ratio of the two numbers is 7:3. What are the two numbers? Solution: Let the common ratio be x. Let the common ratio be x. Their difference = 48According to the question, 7x - 3x = 48 ⇒ 4x = 48 ⇒ x = 48/4 ⇒ x = 12Therefore, 7x = 7 × 12 = 84 3x = 3 × 12 = 36 Therefore, the two numbers are 84 and 36.3. The length of a rectangle is twice its breadth. If the perimeter is 72 metre, find the length and breadth of the rectangle. Solution:Let the breadth of the rectangle be x, Then the length of the rectangle = 2xPerimeter of the rectangle = 72Therefore, according to the question2(x + 2x) = 72⇒ 2 × 3x = 72⇒ 6x = 72 ⇒ x = 72/6⇒ x = 12We know, length of the rectangle = 2x = 2 × 12 = 24Therefore, length of the rectangle is 24 m and breadth of the rectangle is 12 m. 4. Aaron is 5 years younger than Ron. Four years later, Ron will be twice as old as Aaron. Find their present ages. Solution:Let Ron’s present age be x. Then Aaron’s present age = x - 5After 4 years Ron’s age = x + 4, Aaron’s age x - 5 + 4. According to the question; Ron will be twice as old as Aaron. Therefore, x + 4 = 2(x - 5 + 4) ⇒ x + 4 = 2(x - 1) ⇒ x + 4 = 2x - 2⇒ x + 4 = 2x - 2⇒ x - 2x = -2 - 4⇒ -x = -6⇒ x = 6Therefore, Aaron’s present age = x - 5 = 6 - 5 = 1Therefore, present age of Ron = 6 years and present age of Aaron = 1 year.5. A number is divided into two parts, such that one part is 10 more than the other. If the two parts are in the ratio 5 : 3, find the number and the two parts. Solution:Let one part of the number be xThen the other part of the number = x + 10The ratio of the two numbers is 5 : 3Therefore, (x + 10)/x = 5/3⇒ 3(x + 10) = 5x ⇒ 3x + 30 = 5x⇒ 30 = 5x - 3x⇒ 30 = 2x ⇒ x = 30/2 ⇒ x = 15Therefore, x + 10 = 15 + 10 = 25Therefore, the number = 25 + 15 = 40 The two parts are 15 and 25. More solved examples with detailed explanation on the word problems on linear equations.6. Robert’s father is 4 times as old as Robert. After 5 years, father will be three times as old as Robert. Find their present ages. Solution:Let Robert’s age be x years. Then Robert’s father’s age = 4xAfter 5 years, Robert’s age = x + 5Father’s age = 4x + 5According to the question, 4x + 5 = 3(x + 5) ⇒ 4x + 5 = 3x + 15 ⇒ 4x - 3x = 15 - 5 ⇒ x = 10⇒ 4x = 4 × 10 = 40 Robert’s present age is 10 years and that of his father’s age = 40 years. 7. The sum of two consecutive multiples of 5 is 55. Find these multiples. Solution:Let the first multiple of 5 be x. Then the other multiple of 5 will be x + 5 and their sum = 55Therefore, x + x + 5 = 55⇒ 2x + 5 = 55⇒ 2x = 55 - 5⇒ 2x = 50⇒ x = 50/2 ⇒ x = 25 Therefore, the multiples of 5, i.e., x + 5 = 25 + 5 = 30Therefore, the two consecutive multiples of 5 whose sum is 55 are 25 and 30. 8. The difference in the measures of two complementary angles is 12°. Find the measure of the angles. Solution:Let the angle be x. Complement of x = 90 - xGiven their difference = 12°Therefore, (90 - x) - x = 12°⇒ 90 - 2x = 12⇒ -2x = 12 - 90⇒ -2x = -78⇒ 2x/2 = 78/2⇒ x = 39Therefore, 90 - x = 90 - 39 = 51 Therefore, the two complementary angles are 39° and 51°9. The cost of two tables and three chairs is $705. If the table costs $40 more than the chair, find the cost of the table and the chair. Solution:The table cost $ 40 more than the chair. Let us assume the cost of the chair to be x. Then the cost of the table = $ 40 + xThe cost of 3 chairs = 3 × x = 3x and the cost of 2 tables 2(40 + x) Total cost of 2 tables and 3 chairs = $705Therefore, 2(40 + x) + 3x = 70580 + 2x + 3x = 70580 + 5x = 7055x = 705 - 805x = 625/5x = 125 and 40 + x = 40 + 125 = 165Therefore, the cost of each chair is $125 and that of each table is $165. 10. If 3/5 ᵗʰ of a number is 4 more than 1/2 the number, then what is the number? Solution:Let the number be x, then 3/5 ᵗʰ of the number = 3x/5Also, 1/2 of the number = x/2 According to the question, 3/5 ᵗʰ of the number is 4 more than 1/2 of the number. ⇒ 3x/5 - x/2 = 4⇒ (6x - 5x)/10 = 4⇒ x/10 = 4⇒ x = 40The required number is 40. Try to follow the methods of solving word problems on linear equations and then observe the detailed instruction on the application of equations to solve the problems. ● EquationsWhat is an Equation?What is a Linear Equation?How to Solve Linear Equations?Solving Linear EquationsProblems on Linear Equations in One VariableWord Problems on Linear Equations in One VariablePractice Test on Linear EquationsPractice Test on Word Problems on Linear Equations● Equations - WorksheetsWorksheet on Linear EquationsWorksheet on Word Problems on Linear Equation 7th Grade Math Problems 8th Grade Math Practice From Word Problems on Linear Equations to HOME PAGE Didn't find what you were looking for? Or want to know more information about Math Only Math. Use this Google Search to find what you need. 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