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Algebra practice problems and answers

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Students will practice working with the point slope form of a line by writing its equation from slope and 1 point, from 2 points, from the graph and more. Error : Please Click on "Not a robot", then try downloading again. Find the equation of a line with the given slope and y-intercept. Express your answer in point slope form. Find the equation of the line that passes through the following two points. Express your answer in point slope form. Write the equation of the line graphed below. Express your answer in point slope form. Convert each point slope equation to slope intercept form. Error : Please Click on "Not a robot", then try downloading again. This is a 4 part worksheet: Part I Model Problems Part II Practice Part III Challenge Problems Part IV Answer Key Error : Please Click on "Not a robot", then try downloading again. Here are some free practice algebra problems and answers to help you study. Go to the links at the bottom of the page for more problems. 1) Expand the following: 2) 31 – 2/3x > 27, then x < ? 3) Factor using the greatest common factor: 4a2 + 16ab + 24b4 – 8 4) If 5a + 3b = c, then a = ? 5) Solve for x: 10 – 3x = 5x + 2 6) What is the value of the following expression when x = 2 and y = −2 ? 7) −3(7 − 2) − 4(3 − 4) = ? 1) You need to use the FOIL method to get the answer below. 2) x < 6 3) 4(a2 + 4ab + 6b4 – 2) 4) a = c – 3b/5 5) x = 1 6) −8 7) −11 Solutions and explanations for each of the answers to the algebra practice problems are provided in this section. Polynomials are algebraic expressions that contain more than one term. You will definitely have questions on your algebra exam about multiplying polynomials. When multiplying polynomials, you should use the F-O-I-L method. This means that you multiply the variables two at a time from each of the two parts of the equation in the parentheses in this order: First – Outside – Inside – Last So, the first variables in each set of parentheses are 2x and 2x FIRST: The variables on the outside of each set of parentheses are 2x and 3y OUTSIDE: The variables on the inside of each set of parentheses are -3y and 2x INSIDE: The last variables in each set of parentheses are -3y and -3y LAST: Then we add all of the above parts together to get: Algebra practice problems usually include inequalities problems and answers. Inequalities contain the less than or greater than signs. In order to solve inequalities, deal with the whole numbers on each side of the equation first: 31 – 2/3x > 27 (31 – 31) – 2/3x > (27 – 31) –2/3x > -4 Then deal with the fraction: –2/3x > -4 3 × –2/3x > -4 × 3 -2x > -12 Then deal with the remaining whole numbers: -2x > -12 -2x ÷ 2 > -12 ÷ 2 –x > -6 Then, deal with the negative number: –x > -6 –x + 6 > -6 + 6 –x + 6 > 0 Finally, isolate the unknown variable as a positive number: –x + 6 > 0 –x + x + 6 > 0 + x 6 > x x < 6 To find the greatest common factor for these kinds of algebra practice problems, isolate all of the integers: 4, 16, 14, 8 Greatest Common Factor Welcome to the Algebra worksheets page at Math-Drills.com, where unknowns are common and variables are the norm. On this page, you will find Algebra worksheets for middle school students on topics such as algebraic expressions, equations and graphing functions. This page starts off with some missing numbers worksheets for younger students. We then get right into algebra by helping students recognize and understand the basic language related to algebra. The rest of the page covers some of the main topics you'll encounter in algebra units. Remember that by teaching students algebra, you are helping to create the future financial whizzes, engineers, and scientists that will solve all of our world's problems. Algebra is much more interesting when things are more real. Solving linear equations is much more fun with a two pan balance, some mystery bags and a bunch of jelly beans. Algebra tiles are used by many teachers to help students understand a variety of algebra topics. And there is nothing like a set of co-ordinate axes to solve systems of linear equations. Algebraic Properties, Rules and Laws Worksheets The commutative law or commutative property states that you can change the order of the numbers in an arithmetic problem and still get the same results. In the context of arithmetic, it only works with addition or multiplication operations, but not mixed addition and multiplication. For example, 3 + 5 = 5 + 3 and 9 × 5 = 5 × 9. A fun activity that you can use in the classroom is to brainstorm non-numerical things from everyday life that are commutative and non-commutative. Putting on socks, for example, is commutative because you can put on the right sock then the left sock or you can put on the left sock then the right sock and you will end up with the same result. Putting on underwear and pants, however, is non-commutative. The Commutative Law Worksheets The associative law or associative property allows you to change the grouping of the operations in an arithmetic problem with two or more steps without changing the result. The order of the numbers stays the same in the associative law. As with the commutative law, it applies to addition-only or multiplication-only problems. It is best thought of in the context of order of operations as it requires that parentheses must be dealt with first. An example of the associative law is: (9 + 5) + 6 = 9 + (5 + 6). In this case, it doesn't matter if you add 9 + 5 first or 5 + 6 first, you will end up with the same result. Students might think of some examples from their experience such as putting items on a tray at lunch. They could put the milk and vegetables on their tray first then the sandwich or they could start with the vegetables and sandwich then put on the milk. If their tray looks the same both times, they will have modeled the associative law. Reading a book could be argued as either associative or nonassociative as one could potentially read the final chapters first and still understand the book as well as someone who read the book the normal way. The Associative Law Worksheets Inverse relationships worksheets cover a pre-algebra skill meant to help students understand the relationship between multiplication and division and the relationship between addition and subtraction. Inverse Mathematical Relationships with One Blank Inverse Mathematical Relationships with Two Blanks The distributive property is an important skill to have in algebra. In simple terms, it means that you can split one of the factors in multiplication into addends, multiply each addend separately, add the results, and you will end up with the same answer. It is also useful in mental math, an example of which should help illustrate the definition. Consider the question, 35 × 12. Splitting the 12 into 10 + 2 gives us an opportunity to complete the question mentally using the distributive property. First multiply 35 × 10 to get 350. Second, multiply 35 × 2 to get 70. Lastly, add 350 + 70 to get 420. In algebra, the distributive property becomes useful in cases where one cannot easily add the other factor before multiplying. For example, in the expression, 3(x + 5), x + 5 cannot be added without knowing the value of x. Instead, the distributive property can be used to multiply 3 × x and 3 × 5 to get 3x + 15. Distributive Property Worksheets Students should be able to substitute known values in for an unknown(s) in an expression and evaluate the expression's value. Evaluating Expressions with Known Values The exponent rules covered in this section include: product, quotient, power of a product, power of a quotient and power of a power rules. Product Rule: aman = am+n Quotient Rule: am/an = am-n Power of a Product Rule: (ab)m = ambm Power of a Quotient Rule: (a/b)m = am/bm Power of a Power Rule: (am)n = amn Depending on the worksheet, students might also want to be familiar with basic rules: a0 = 1 a1 = a a-m = 1/am -am = am when m is even Exponent Rules With Numbers Knowing the language of algebra can help to extract meaning from word problems and to situations outside of school. In these worksheets, students are challenged to convert phrases into algebraic expressions. Translating Algebraic Phrases into Expressions Combining like terms is something that happens a lot in algebra. Students can be introduced to the topic and practice a bit with these worksheets. The bar is raised with the adding and subtracting versions that introduce parentheses into the expressions. For students who have a good grasp of fractions, simplifying simple algebraic fractions worksheets present a bit of a challenge over the other worksheets in this section. Simplifying Expressions by Combining Like Terms Simplifying Expressions by Combining Like Terms with Some Arithmetic Rewriting Linear Equations Rewriting Formulas Linear Expressions and Equations Missing Numbers in Equations with Blanks as Unknowns Missing Numbers in Equations with Symbols as Unknowns Solving Equations with Addition and Symbols as Unknowns Solving Simple Linear Equations with Letters as Unknowns (All Operations) Solving Simple Linear Equations with Letters as Unknowns (Addition and Subtraction) Solving Simple Linear Equations with Letters as Unknowns (Addition and Subtraction with Negative Numbers) Solving Simple Linear Equations with Letters as Unknowns (Multiplication and Division) Determining Linear Equations from Slopes, y-intercepts and Points Graphing linear equations and reading existing graphs give students a visual representation that is very useful in understanding the concepts of slope and y-intercept. Graphing Linear Equations Graph Slope-Intercept Equations Determining Linear Equations from Graphs Solving linear equations with jelly beans is a fun activity to try with students first learning algebraic concepts. Ideally, you will want some opaque bags with no mass, but since that isn't quite possible (the no mass part), there is a bit of a condition here that will actually help students understand equations better. Any bags that you use have to be balanced on the other side of the equation with empty ones. Probably the best way to illustrate this is through an example. Let's use 3x + 2 = 14. You may recognize the x as the unknown which is actually the number of jelly beans we put in each opaque bag. The 3 in the 3x means that we need three bags. It's best to fill the bags with the required number of jelly beans out of view of the students, so they actually have to solve the equation. On one side of the two-pan balance, place the three bags with x jelly beans in each one and two loose jelly beans to represent the + 2 part of the equation. On the other side of the balance, place 14 jelly beans and three empty bags which you will note are required to "balance" the equation properly. Now comes the fun part... if students remove the two loose jelly beans from one side of the equation, things become unbalanced, so they need to remove two jelly beans from the other side of the balance to keep things even. Eating the jelly beans is optional. The goal is to isolate the bags on one side of the balance without any loose jelly beans while still balancing the equation. The last step is to divide the loose jelly beans on one side of the equation into the same number of groups as there are bags. This will probably give you a good indication of how many jelly beans there are in each bag. If not, eat some and try again. Now, we realize this won't work for every linear equation as it is hard to have negative jelly beans, but it is another teaching strategy that you can use for algebra. Despite all appearances, equations of the type a/x are not linear. Instead, they belong to a different kind of equations. They are good for combining them with linear equations, since they introduce the concept of valid and invalid answers for an equation (what will be later called the domain of a function). In this case, the invalid answers for equations in the form a/x, are those that make the denominator become 0. Solving Linear Equations Algebra rectangles are rectangles that use linear expressions for the side measurements. With a known value (such as the perimeter), students create an algebraic equation that they can solve to determine the value of the unknown (x) and use it to determine the side lengths and area of the rectangle. The terminology in identifying the various options for worksheets use the standard equation y = mx + b where m is the coeffient of x that is generally a known value. Algebra Rectangles Algebra Rectangles -- Determining the Value of x, Length, Width and Area Using Algebraic Sides and the Perimeter -- m Range [1,1] Algebra Worksheet -{}- Algebra Rectangles -- Determining the Value of x, Length, Width and Area Using Algebraic Sides and the Perimeter -- m Range [2,9] Algebra Worksheet -{}- Algebra Rectangles -- Determining the Value of x, Length, Width and Area Using Algebraic Sides and the Perimeter -- m Range [2,9] or [-9,-2] Algebra Worksheet -{}- Algebra Rectangles -- Determining the Value of x, Length, Width and Area Using Algebraic Sides and the Perimeter -- m Range [2,9] or [-9,-2] -- Inverse m Possible Quadratic Expressions and Equations Simplifying (Combining Like Terms) Quadratic Expressions Adding/Subtracting and Simplifying Quadratic Expressions Multiplying Factors to Get Quadratic Expressions The factoring quadratic expressions worksheets in this section provide many practice questions for students to hone their factoring strategies. If you would rather worksheets with quadratic equations, please see the next section. These worksheets come in a variety of levels with the easier ones are at the beginning. The 'a' coefficients referred to below are the coefficients of the x2 term as in the general quadratic expression: ax2 + bx + c. There are also worksheets in this section for calculating sum and product and for determining the operands for sum and product pairs. Factoring Quadratic Expressions Whether you use trial and error, completing the square or the general quadratic formula, these worksheets include a plethora of practice questions with answers. In the first section, the worksheets include questions where the quadratic expressions equal 0. This makes the process similar to factoring quadratic expressions, with the additional step of finding the values for x when the expression is equal to 0. In the second section, the expressions are generally equal to something other than x, so there is an additional step at the beginning to make the quadratic expression equal zero. Solving Quadratic Equations that Equal Zero Solving Quadratic Equations that Equal an Integer Other Polynomial and Monomial Expressions & Equations Simplifying Polynomials That Involve Addition And Subtraction Simplifying Polynomials That Involve Multiplication And Division Simplifying Polynomials That Involve Addition, Subtraction, Multiplication And Division Factoring Expressions That Do Not Include A Squared Variable Factoring Expressions That Always Include A Squared Variable Factoring Expressions That Sometimes Include Squared Variables Multiplying Polynomials With Two Factors Multiplying Polynomials With Three Factors Mathworksheetsgo.com is now a part of Mathwarehouse.com. All of your worksheets are now here on Mathwarehouse.com. Please update your bookmarks! Error : Please Click on "Not a robot", then try downloading again. Free intermediate and college algebra questions and problems are presented along with answers and explanations. Free worksheets to download are also included. Intermediate Algebra Questions with Answers Intermediate Algebra Problems with Detailed Solutions Algebra Problems. Algebra 2 Problems with Solutions - Part 1 . Algebra 2 Problems with Solutions - Part 2 . Intermediate Algebra Problems With Answers - sample 1: equations, system of equations, percent problems, relations and functions. Intermediate Algebra Problems With Answers - sample 2:Find equation of line, domain and range from graph, midpoint and distance of line segments, slopes of perpendicular and parallel lines. Intermediate Algebra Problems With Answers - sample 3: equations and system of equations, quadratic equations, function given by a table, intersections of lines, problems. Intermediate Algebra Problems With Answers - sample 4. Functions, domain, range, zeros. Intermediate Algebra Problems With Answers - sample 5. Scientific Notation Intermediate Algebra Problems With Answers - sample 6. Equations of Lines Intermediate Algebra Problems With Answers - sample 7. Slopes of Lines Intermediate Algebra Problems With Answers - sample 8. Absolute Value Expressions Intermediate Algebra Problems With Answers - sample 9. Solve Absolute Value Equations Intermediate Algebra Problems With Answers - sample 10. Solve Absolute Value Inequalities Intermediate Algebra Problems With Answers - sample 11. Simplify Algebraic Expressions by Removing Brackets Intermediate Algebra Problems With Answers - sample 12. Simplify Algebraic Expressions with Exponents Intermediate Algebra Worksheets College Algebra Questions with Answers College Algebra Problems with Answers sample 1: Quadratic Functions. sample 2: Composite and Inverse Functions. sample 3: Exponential and Logarithmic Functions. sample 4: Graphs of Functions . sample 5: Find Domain and Range of Functions. sample 6: Problems on Polynomials: Graphs, Factoring, Finding, Multiplying, Dividing, Factor theorem, Zeros sample 7: Equation of Circle: Finding equations, center, radius of circles sample 8: Equation of Ellipse: Finding equations, foci, center, vertices of ellipses sample 9: Equation of Parabola: Finding equations, focus, vertex, axis, directrix of parabola. sample 10: Equation of Hyperbola: Finding equations, foci, center and vertices of hyperbola. College Algebra Worksheets Mathworksheetsgo.com is now a part of Mathwarehouse.com. All of your worksheets are now here on Mathwarehouse.com. Please update your bookmarks! Students will practice adding and subtracting, multiplying, and dividing polynomials. Error : Please Click on "Not a robot", then try downloading again. Error : Please Click on "Not a robot", then try downloading again. This is a 3 part worksheet: Part I Practice Part II Challenge Problems Part III Answer Key Error : Please Click on "Not a robot", then try downloading again. The Motorsport Images Collections captures events from 1895 to today’s most recent coverage.Discover The CollectionCurated, compelling, and worth your time. Explore our latest gallery of Editors’ Picks.Browse Editors' FavoritesExperience AI-Powered CreativityThe Motorsport Images Collections captures events from 1895 to today’s most recent coverage.Discover The CollectionCurated, compelling, and worth your time. 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