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Graphing Linear Equations in Standard Form

Graph the following linear equations. Identify the x- and y-intercepts.

1. $2x + 4y - 12 = 0$ (x=6, y=0) 2. $-3x + 5y - 15 = 0$ (x=0, y=3) 3. $4x + 3y - 24 = 0$ (x=6, y=0) (x=0, y=8)

4. $-4x + 2y - 16 = 0$ (x=4, y=0) 5. $x + y - 9 = 0$ (x=9, y=0) 6. $8x + 16y - 16 = 0$ (x=2, y=0) (x=0, y=1)

7. $-15x + 30y - 30 = 0$ (x=2, y=0) 8. $20x + 10y - 40 = 0$ (x=2, y=0) 9. $3x - 7y - 21 = 0$ (x=7, y=0) (x=0, y=-3)

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Practice: Graphing Equations in Standard Form

#1 Graph $x - y = 5$.

#2 Graph $6x - 3y = -3$.

#3 Graph $x + 2y = 2$.

#4 Graph $4x + 2y = -8$.

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Graphing Linear Equations

Complete the table. Plot the points and graph the line.

1) $7x - y = 7$

x	0	1	2	3	4
y					

2) $2x - 8 = 4y$

x	-8	-6	-4	-2	0
y					

3) $3y = 12 - 2x$

x	-12	-6	0	6	12
y					

4) $15 = 10x + 5y$

x	-2	-1	0	2	3
y					

5) $4y = -x + 12$

x	-8	-4	0	4	8
y					

6) $x + 12 = 6y$

x	-12	-6	0	6	12
y					

7) $-x + 9y = 9$

x	9	18	27	36	45
y					

8) $-35 = 5y - x$

x	5	10	15	20	25
y					

9) $2y = -x + 8$

x	-2	0	2	4	6
y					

Graphing Linear Equations (A)

Name: _____ Date: _____

Graph each linear equation.

Equation: $y = 2x - 3$

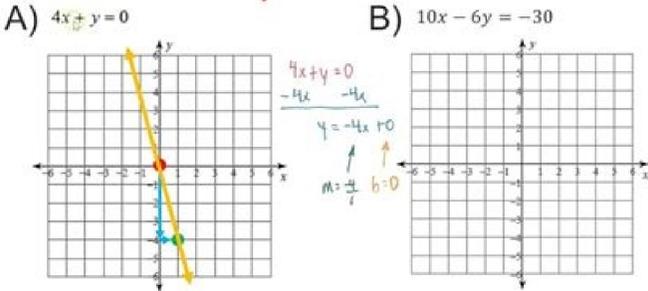
Equation: $y = 2x - 4$

Equation: $y = 2x + 1$

Equation: $y = 2x + 4$

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Worked Example



How do you graph a line written in standard form. Graphing lines in standard form worksheet.

This exclusive ensemble of printable worksheets has been designed to help 8th grade and high school learners comprehend the basics of converting equation of a line to point-slope form and writing equation of a line using the given point and the slope. A series of exercises requires students to find the equations of a line that is either parallel or perpendicular to another equation of the line. The pdf worksheets based on graphing the line using a point and the slope are also included. Access some of these worksheets for free! [Printing Help](#) - Please do not print worksheets with grids directly from the browser. Kindly download them and print. Equation of a Line: Point-Slope Form Write the equation of a line in point-slope form based on the slope and the point provided in this set of printable worksheets. There are ten problems in each worksheet. Equation of a Line: Slope-Intercept Form - Level 1 Based on the point and the slope provided for each question, apply point-slope formula to find the equation of a line and express the equation in slope-intercept form: $y = mx + b$. This level of worksheets features coordinates in the form of integers, and the slope provided can either be an integer or a fraction. Equation of a Line: Slope-Intercept Form - Level 2 In the second level of worksheets, the coordinates are represented as fractions and the slopes are either in the form of integers or simplified fractions. Find the equation of a line and write the equation in slope-intercept form. Equation of a Line: Standard Form - Level 1 Find the equation of a line based on the given slope and a point and express the equation in standard form. The slopes in this collection of grade 8 and high school pdf worksheets can be in the form of either integers or fractions whereas the coordinates are represented in integer form. Equation of a Line: Standard Form - Level 2 In this second level of worksheets, the coordinates are given as fractions and the slopes can be either in the form of fractions or integers. Apply point-slope formula and find the equation of a line. Represent the equation of a line in standard form $ax + by = c$. Parallel and Perpendicular Lines Find the equation of a line that is passing through the given point and is either parallel or perpendicular to another line. Write the equation of a line in standard form. Download these worksheets for ample practice. Graph the Line: Point-Slope Form Use this exclusive set of printable worksheets to graph the line based on the point and the slope provided. Plot the given point, mark another point on the grid using the given slope and graph the line. Use the answer key to verify your responses. This segment has an endless collection of equation worksheets based on solving one-step, two-step and multi-step equations; rearranging literal equations, writing the equation of a line in various forms; graphing linear equation and more. High-school topics such as quadratic equation, absolute value equation and systems of equations are also featured here. Practice solving the equations by using the various download options available. A number of free printable worksheets are also up for grabs! One-step equation worksheets This set of worksheets requires students to solve one-step equations involving integers, fractions and decimals by performing addition, subtraction, multiplication or division operations. It also contains math riddles, finding the cost of the objects, translating the phrases into one-step equation and more. Two-step equation worksheets Click on the link to access exclusive worksheets on solving two-step equations that include integers, fractions and decimals. A number of MCQ's, equations in geometry, translating two-step equations and many more exercises are available for practice. Multi-step equation worksheets These worksheets require students to perform multiple steps to solve the equations. Use the knowledge gained in solving one-step and two-step equations to solve these multi-step equations. A number of application oriented problems based on geometrical shapes are also included here. Equation word problems worksheets Download and print this enormous collection of one-step, two-step and multi-step equation word problems that include integers, fractions, and decimals. MCQ worksheets form a perfect tool to examine a learner's perception on the topic. Rearranging Equations worksheets Literal equation worksheets help to hone the skills like rearranging the literal equations, rearrange and evaluate, word problems containing real-life applications and a lot more are included. Equation of a line worksheets Click here for worksheets on equation of a line. Write the equation of a line in standard form, two-point form, slope-intercept form and point-slope form. Download the complete set of worksheets on equation of a line that comprise worksheets on parallel and perpendicular lines as well. Graphing linear equation worksheets You are just a click away from a huge collection of worksheets on graphing linear equations. Plot the points and graph the line. Use the x values to complete the function tables and graph the line. The MCQ worksheets form a perfect tool to test student's knowledge on this topic. Quadratic equation worksheets Click on the link for an extensive set of worksheets on quadratic equations. Solve the quadratic equations by factoring, completing the square, quadratic formula or square root methods. Find the sum and product of the roots. Analyze the nature of the roots. Absolute value equation worksheets Use these worksheets to teach your students about the absolute value of integers. This module includes exercises like evaluating the absolute value expression at a particular value, input and output tables, graph the absolute value function and solve the various types of absolute value equation. Systems of equations worksheets Solve these systems of equations by elimination or substitution methods. The equations contain two or three variables. Equation with two variables represents straight lines, whereas equations with three variables represent a plane. Sample Worksheets © 2022 Kuta Software. All rights reserved. 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 mostly for middle school students on algebra 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. Most Popular Algebra Worksheets this Week Properties and Laws of Numbers Worksheets The Associative Law 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. Missing Numbers or Unknowns in Equations Worksheets Missing numbers in equations worksheets in three types: blanks for unknowns, symbols for unknowns and variables for unknowns. Algebraic Expressions Worksheets Using the distributive property 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, and 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 $3 \times x$ and 3×5 to get $3x + 15$. Exponent Rules and Properties Linear Expressions & Equations Linear equations worksheets including simplifying, graphing, evaluating and solving systems of linear equations. 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. Linear Systems Quadratic Expressions & Equations Quadratic expressions and equations worksheets including multiplying factors, factoring, and solving quadratic equations. 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. Other Polynomial and Monomial Expressions & Equations Factoring non-quadratic expressions worksheets with various levels of complexity. Inequalities Including Graphs Inequalities worksheets including writing the inequality that matches a graph and graphing inequalities on a number line. Graphing inequalities on number lines Graphing Inequalities (Basic)