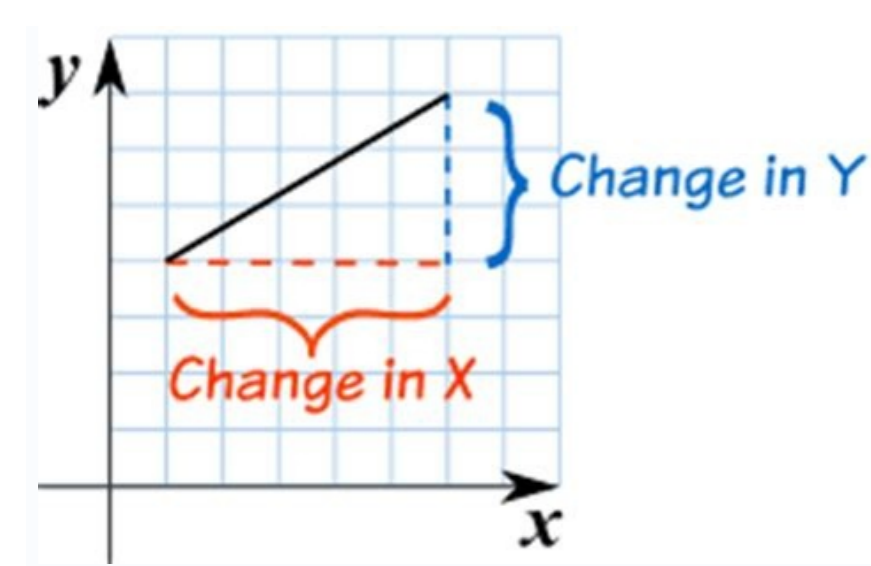


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4. Find the equation of the line that passes through the following points and has the given gradient.
- a) (1, 2), gradient = 3 b) (1, 2), gradient = -2
- c) (1, 2), gradient = 4 d) (1, 2), gradient = -4
5. Find the equation of the line that passes through the following points.
- a) (1, 2), (3, 0) b) (0, -2), (3, 0)
- c) (1, 2), (0, 0) d) (0, 0), (3, 0)

Name: _____ Score: _____

MCQ

Sheet 1

- The diagonal AC of the rectangle has end points (-3, 2) and (3, 6). Which of the following is the value of m, if the point (0, m) lies on the diagonal AC of the rectangle.
 - m = -4
 - m = 6
 - m = 2
 - m = 4
- The diameter of the circle is passing through the points (2, 5) and (5, -4). If (s, 2) is a point on that diameter, then which of the following is the value of s?
 - s = 2
 - s = 3
 - s = 5
 - s = -2
- A side of the trapezium is passing through the points (6, -4) and (8, -6). Identify the value of v, if the point (7, -v) lies on that side.
 - v = 7
 - v = -5
 - v = 5
 - v = -7
- A side UV of the rhombus has the end points (-5, -2) and (-8, -5). If the point (-7, q) lies on the side UV of the rhombus, then identify the value of q.
 - q = 7
 - q = -1
 - q = -4
 - q = 2
- The diagonal AB of the square has the end points (-1, -1) and (-9, 7). (u, 5) is a point on the diagonal AB. Which of the following is the value of u?
 - u = -7
 - u = -3
 - u = 5
 - u = 3
- Which of the following is the value of k if the point (k, 5) lies on the side of the triangle joining the points (6, 7) and (4, 3)?
 - k = 1
 - k = 5
 - k = 6
 - k = -5
- A side CD of a kite is formed by joining the points (-5, -6) and (-8, 0). Identify the value of z if the point (-7, z) lies on the side CD of the kite.
 - z = 2
 - z = 9
 - z = 0
 - z = -2

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Linear Equation Graphs (A)

Name: _____ Date: _____

Determine the y-intercept of each line from its graph.

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Find the equation of each line

Finding the equation of a straight line worksheet tes. Finding the equation of a straight line from two points worksheet. How to find the equation of a straight horizontal line. How do you determine the equation of a straight line. How to find the equation of a line example. Finding the equation of a straight line given two points worksheet.

GCSE 4 - 5KS3QAEdexcelOCRWJECQA November 2022Edexcel November 2022OCR November 2022WJEC November 2022Foundation Any straight line graph can be described by the following equation: $y = mx + c$ where x and y are the coordinates the line passes through, m is the gradient and c is the y-intercept (the y-coordinate where the line crosses the y axis). Level 4-5 GCSE KS3 Level 4-5 GCSE KS3 We need to be able to find the equation of a straight line from the graph. Example: Find the equation of the straight line graph below Step 1: Find the equation of the line. We are looking for an equation of the form, $y = mx + c$. We know c = y-intercept. Looking at the graph, we can see it crosses the axis at -1, therefore we have $c = -1$. Step 2: Find the gradient m . Then, to work out the gradient, $m = \frac{\text{change in } y}{\text{change in } x}$. The triangle we have drawn has height 4 and width 2, so we get, $m = \frac{4}{2} = 2$. Therefore, the equation of the straight line is, $y = 2x - 1$. Step 3: Check the equation. We know that $m = 2$, we know that our equation must take the form, $y = 2x + c$ Step 2: Substitute the x and y values of one co-ordinate, say $x = -3, y = 1$, into the equation, $1 = 2(-3) + c$ Step 3: Rearrange to solve for c, $c = 1 + 6 = 7$ Step 4: Now we have all the components of the equation of a line, we can write the resulting equation as, $y = 2x + 7$ Level 4-5 GCSE KS3 Level 4-5 GCSE KS3 It is often necessary to rearrange the equation of a line to get it in the form $y = mx + c$. This is essential for finding the gradient and y-intercept. Example: Find the gradient and y-intercept of the line $x + 2y = 14$. We want to rearrange this equation to make y the subject. So, subtracting x from both sides, we get $2y = -x + 14$. Then, dividing both sides by 2, we get $y = -\frac{1}{2}x + 7$. Therefore, the gradient is $-\frac{1}{2}$ and the y-intercept is 7. Level 4-5 GCSE KS3 Example Questions We want an equation of the form $y = mx + c$. So, we need to find the gradient, m, and y-intercept, c. Firstly, looking at the graph we can see that the y-intercept is -1, so $c = -1$. Now, we will find the gradient by drawing a triangle underneath the line in question. The triangle we have drawn has height 1 and width 3, so we get $m = \frac{1}{3}$. Therefore, the equation of the line is $y = \frac{1}{3}x - 1$. We want an equation of the form $y = mx + c$. So, we need to find the gradient, m, and y-intercept, c. Firstly, looking at the graph we can see that the y-intercept is 2, so $c = 2$. Now, we will find the gradient by dividing the difference in the y coordinates by the difference in the x coordinates: $m = \frac{4 - 2}{-3 - 2} = \frac{2}{-5} = -\frac{2}{5}$. Therefore, the equation of the line is $y = -\frac{2}{5}x + 2$. Then, to find c we will substitute one pair of coordinates that the line passes through into the equation and rearrange. Here, we'll pick (2, 3). Subbing this in, we get $3 = -\frac{2}{5} \times 2 + c = -\frac{4}{5} + c$. Subtracting $-\frac{4}{5}$ from both sides, we get $c = 3 + \frac{4}{5} = \frac{19}{5}$. Therefore, the equation of the line is $y = -\frac{2}{5}x + \frac{19}{5}$. We want an equation of the form $y = mx + c$. So, we need to find the gradient, m, and y-intercept, c. Firstly, looking at the graph we can see that the y-intercept is -1, so $c = -1$. Now, we will find the gradient by drawing a triangle underneath the line in question. Hence $m = \frac{3}{2}$. Therefore, the equation of the line is $y = \frac{3}{2}x - 1$. Related Topics Worksheet and Example Questions You May Also Like... Revise for your GCSE maths exam using the most comprehensive maths revision cards available. These GCSE Maths revision cards are relevant for all major exam boards including AQA, OCR, Edexcel and WJEC. £8.99 View Product The MME GCSE maths revision guide covers the entire GCSE maths course with easy to understand examples, explanations and plenty of exam style questions. We also provide a separate answer book to make checking your answers easier! From: £19.99 £14.99 View Product Report this resource to let us know if it violates our terms and conditions. Our customer service team will review your report and will be in touch. arrow back Back to Working with $y = mx + c$ Whether you want a homework, some cover work, or a lovely bit of extra practise, this is the place for you. And best of all they all (well, most) come with answers. Contents Mathster is a fantastic resource for creating online and paper-based assessments and homeworks. They have kindly allowed me to create 3 editable versions of each worksheet, complete with answers. Worksheet Name 1 2 3 Graphs - Horizontal and Vertical Lines 1 2 3 Graphs - gradient and y-intercept 1 2 3 Graphs - Find Equation of a Line 1 2 3 Corbett Maths keyboard_arrow_up Back to Top Corbett Maths offers outstanding, original exam style questions on any topic, as well as videos, past papers and 5-a-day. It really is one of the very best websites around. Problem 1 :Find the general form of equation of a straight line whose slope is 3 and y-intercept -2. Problem 2 :Find the general form of equation of a straight line passing through the points (-1, 1) and (2, -4). Problem 3 :Find the general equation of the straight line passing through the point (-2, 3) with slope 1/3. Problem 4 :Find the general equation of the straight line whose x-intercept -2 and y-intercept is 3. Problem 5 :Find the equation of a straight line parallel to y-axis and passing through (-5, 0). Problem 6 :Find the equation of a straight line parallel to x-axis and passing through (0, 6). Problem 7 :Find the equation of a straight line shown below in slope-intercept form. Detailed Answer Key Problem 1 :Find the general form of equation of a straight line whose slope is 3 and y-intercept -2. Solution :Given : Slope $m = 3$ and y-intercept $b = -2$. Equation of the straight line in slope-intercept form : $y = mx + b$ Substitute $m = 3$ for m and $b = -2$. $y = 3x - 2$ Subtract y from each side. $0 = 3x - y - 2$ or $3x - y - 2 = 0$ Problem 2 :Find the general form of equation of a straight line passing through the points (-1, 1) and (2, -4). Solution :Given : Two points on the straight line : (-1, 1) and (2, -4). Equation of the straight line in two-points form is $(y - y_1) / (y_2 - y_1) = (x - x_1) / (x_2 - x_1)$ Substitute $(x_1, y_1) = (-1, 1)$ and $(x_2, y_2) = (2, -4)$. $(y - 1) / (-4 - 1) = (x + 1) / (2 + 1)$ Simplify. $(y - 1) / (-5) = (x + 1) / 3$ Cross multiply. $3(y - 1) = -5(x + 1) / 3$ $3y - 3 = -5x - 5x + 3y + 2 = 0$ Problem 3 :Find the general equation of the straight line passing through the point (-2, 3) with slope 1/3. Solution :Given : Point = (-2, 3) and slope $m = 1/3$ Equation of the straight line in point-slope form is $y - y_1 = m(x - x_1)$ Substitute $(x_1, y_1) = (-2, 3)$ and $m = 1/3$. $y - 3 = 1/3(x + 2)$ Multiply each side by 3. $3(y - 3) = x + 2$ Simplify. $3y - 9 = x + 2$ Subtract 3y from each side. $-9 = x - 3y + 2$ Add 9 to each side. $0 = x - 3y + 11$ or $x - 3y + 11 = 0$ Problem 4 :Find the general equation of the straight line whose x-intercept -2 and y-intercept is 3. Solution :Given : x-intercept is -2 and y-intercept is 3. Equation of the straight line in intercept-form is $x/a + y/b = 1$ Substitute $a = -2$ and $b = 3$. $x/(-2) + y/3 = 1$ $-(1/2)x + y/3 = 1$ $-(1/2)x + y/3 = 1$ Multiply each side (1) by 6. $-3x + 2y = 6$ Multiply each side by -1. $3x - 2y = -6$ Add 6 to each side. $3x - 2y + 6 = 0$ Problem 5 :Find the equation of a straight line parallel to y-axis and passing through (-5, 0). Solution :Equation of a straight line parallel to y-axis is $x = c$ It is passing through the point (-5, 0). Then, $-5 = c$. So, the equation of the given line is $x = -5$ or $x + 5 = 0$ Problem 6 :Find the equation of a straight line parallel to x-axis and passing through (0, 6). Solution :Equation of a straight line parallel to x-axis is $y = k$ It is passing through the point (0, 6). Then, $6 = k$. So, the equation of

the given line is $y = -60rx + 5 = 0$ Problem 7: Find the equation of a straight shown below in slope-intercept form. Solution: The above line is a falling line. So, its slope will be a negative value. Measure the rise and run. For the above line, Rise = 1 Run = 4 Then, Slope = rise / run Slope = $-1/4$ From the graph shown above y-intercept is -1. Equation of a straight line in slope-intercept form is $y = mx + b$ Substitute $m = -1/4$ and $b = -1$, $y = (-1/4)x - 1y = -x/4 - 1$ Problem 8: Find the equation of a straight shown below in slope-intercept form. Solution: The above line is a falling line. So, its slope will be a positive value. Measure the rise and run. For the above line, Rise = 6 Run = 2 Then, Slope = rise / run Slope = $6/2$ Slope = 3 From the graph shown above y-intercept is -2. Equation of a straight line in slope-intercept form is $y = mx + b$ Substitute $m = 3$ and $b = -2$, $y = 3x - 2$ Apart from the stuff given above, if you need any other stuff in math, please use our google custom search here. Kindly mail your feedback to v4formath@gmail.com We always appreciate your feedback. ©All rights reserved. onlinemath4all.com There are many instances in science and math in which you will need to determine the equation of a line. In chemistry, you'll use linear equations in gas calculations, when analyzing rates of reaction, and when performing Beer's Law calculations. Here are a quick overview and example of how to determine the equation of a line from (x,y) data. There are different forms of the equation of a line, including the standard form, point-slope form, and slope-line intercept form. If you are asked to find the equation of a line and are not told which form to use, the point-slope or slope-intercept forms are both acceptable options. One of the most common ways to write the equation of a line is: $Ax + By = C$ where A, B, and C are real numbers A linear equation or equation of a line has the following form: $y = mx + b$ m: slope of the line; $m = \Delta x / \Delta y$ b: y-intercept, which is where the line crosses the y-axis; $b = y_i - m x_i$ The y-intercept is written as the point (0,b). Determine the equation of a line using the following (x,y) data. (-2,-2), (-1,1), (0,4), (1,7), (2,10), (3,13) First calculate the slope m, which is the change in y divided by the change in x: $y = \Delta y / \Delta x$ $y = [13 - (-2)] / [3 - (-2)]$ $y = 15/5$ $y = 3$ Next calculate the y-intercept: $b = y_i - m x_i$ $b = (-2) - 3 * (-2)$ $b = -2 + 6$ $b = 4$ The equation of the line is $y = mx + b$ $y = 3x + 4$ In the point-slope form, the equation of a line has slope m and passes through the point (x1, y1). The equation is given using: $y - y_1 = m(x - x_1)$ where m is the slope of the line and (x1, y1) is the given point Find the equation of a line passing through points (-3, 5) and (2, 8). First determine the slope of the line. Use the formula: $m = (y_2 - y_1) / (x_2 - x_1)$ $m = (8 - 5) / (2 - (-3))$ $m = (8 - 5) / (2 + 3)$ $m = 3/5$ Next use the point-slope formula. Do this by choosing one of the points, (x1, y1) and putting this point and the slope into the formula. $y - y_1 = m(x - x_1)$ $y - 5 = 3/5(x - (-3))$ $y - 5 = 3/5(x + 3)$ $y - 5 = (3/5)(x + 3)$ Now you have the equation in point-slope form. You could proceed to write the equation in slope-intercept form if you wish to see the y-intercept. $y - 5 = (3/5)(x + 3)$ $y - 5 = (3/5)x + 9/5$ $y = (3/5)x + 9/5 + 5$ $y = (3/5)x + 9/5 + 25/5$ $y = (3/5)x + 34/5$ Find the y-intercept by setting $x=0$ in the equation of the line. The y-intercept is at the point (0, 34/5).

