Name _____
Date _____

How Do We Write An Equation For A Line?

To write an equation for a line, determine its slope and y-intercept. Then, use the slope-intercept formula: _____.

To write an equation for a line with a given slope and passing through a given point we:

Method:

1) Use the slope-intercept form of an equation, $y = mx + b$, and substitute the given value of the slope for "m"

2) Use the x and y values of the given point for the x and y in the equation.

3) Solve for "b" (the y-intercept.)

4) In the equation $y = mx + b$, replace "m" with the given slope and "b" with the value you found in step 3.

Example:
Write the equation of the line through (2, 16) that has a slope of -5

Examples:

1) Write the equation of the line through (3, 5) that has a slope of 4

2) Write an equation of the line whose slope is 2, and that passes through the point (-3, 4).

To write an equation for a line passing through two given points we:

Method:

1) Use the slope formula to find the slope of the line passing through the given points

2) In $y = mx + b$, replace m by the slope

3) Select one of the given points that is on the line and replace the x and y with those coordinate values.

4) Solve the resulting equation to find the value of b, the y-intercept.

5) Now replace b with its correct value and check to make sure that the coordinates of the second point satisfy the equation.

Example:
Write an equation of the line that passes through the points (3, 7) and (5, 15).

Examples:

1) Write an equation of the line that passes through the points (2, 5) and (4, 11).

2) Write an equation of the line that passes through the points (0, -1) and (6, 8).

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Equations Continued

How Do We Write An Equation From A Table Of Values?

1) Provided the table of values, which equation correctly represents the relationship between x and y.

x	y
2	1
3	3
5	7
7	11

a) $y = 2x-3$ b) $y = x+2$ c) $y = 2x + 3$ d) $y = 2x + 2$

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2) Provided the table of values, write an equation which correctly represents the relationship between x and y.

x	y
1	5
2	6
3	7
4	8