The Meaning of Slope

A carpenter is given a set of house plans that call for a 5:12 roof (or a roof with a pitch of 5:12). This means that the roof must be constructed so that for every 5 inches of rise (vertical distance), there are 12 inches of run (horizontal distance). That is the ratio of rise to run is $\frac{5}{12}$.



2)

Positive slope -Slope is positive if the line goes

- 2 positive directions or
- 2 negative directions

Negative slope -

Slope is negative if the line

goes _____

• One positive direction and one negative direction

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Example: Find the slope of the line through each pair of points. a) points (3, 2) and (-9, 6) b) points (-2, -2) and (-4, 2)



Example: Solve the following equations for y. a) 9x - 3y = 15 b) -8x + 2y = -20 We refer to equations with x and/or y to the first degree as linear equations.

- y = mx + b (slope intercept form)
- Ax + By = C (standard form)
- $y y_1 = m(x x_1)$ (point-slope form)

Examples of non-linear equations:

* The easiest way to graph a line in slope-intercept form is to first graph the

_____ then use the _____ to find two other points on the line.





m =

b =



*When the x and y intercept are the point (0,0) then choose any other x value as an independent variable, calculate y, and plot the 2nd point.

c) Graph -6x + 2y = 0







* You can also graph an equation in standard form by transforming it into

a) Write an equation in point-slope form of the line through point (2, -4) with slope -1. b) Write an equation in point-slope form of the line with slope -8 through point (3, -6)

c) Write an equation in slopeintercept form that contains the points (5, 0) and (7, -3) d) Write an equation in slopeintercept form that contains the points (4, -9) and (-1, 1)



m =

a) Write the equations for the horizontal and vertical lines that contain the point (5, -1).

horizontal

vertical



m =

b) Write the equations for the horizontal and vertical lines that contain the point (-7, -5).

horizontal

vertical

Vertical Line

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