

Straight line - Geogebra

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What is GeoGebra?



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GeoGebra is dynamic mathematics software for all levels of education that brings together geometry, algebra, spreadsheets, graphing, statistics and calculus in one easy-to-use package.

Quick facts about Geogebra





- Geometry, Algebra and Spreadsheet are connected and fully dynamic



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- Easy-to-use interface, yet many powerful features
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- Available in many languages for our millions of users around the world
- Open source software freely available for non-commercial users





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where a and b are constants, real numbers, and $a \neq 0$.

Linear equation





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There are many ways of writing linear equations, but they usually have constants (like "2" or "c") and must have simple variables (like "x" or "y").

Linear equation forms





- Slope-intercept form



- Slope-intercept form
- Point-slope form



- Slope-intercept form
- Point-slope form
- General form



- Slope-intercept form
- Point-slope form
- General form
- Two-point form



- Slope-intercept form
- Point-slope form
- General form
- Two-point form
- Intercept form



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- ...

Slope-intercept form





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m - slope (or gradient)

b - Y intercept

Point-slope form





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$$y - y_1 = m(x - x_1)$$



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where $m \neq 0$ is the slope of the line and (x_1, y_1) is any point on the line.





General form of the equation of a straight line:



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$$Ax + By + C = 0$$



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$$Ax + By + C = 0$$

where A , B and C are real numbers and $A \neq 0$, $B \neq 0$.

Two-point form





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$$y - y_1 = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1)$$



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$$y - y_1 = \frac{y_2 - y_1}{x_2 - x_1}(x - x_1)$$

where (x_1, y_1) and (x_2, y_2) are two points on the line with $x_2 \neq x_1$.





Intercept form of the equation of a straight line:



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$$\frac{x}{a} + \frac{y}{b} = 1$$



Intercept form of the equation of a straight line:

$$\frac{x}{a} + \frac{y}{b} = 1$$

where a and b must be nonzero.

Linear function-graph





1. Create graph in GeoGebra using slope-intercept form.



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5. Create graph in GeoGebra using intercept form.