**Graph Linear Equations** (A focus on Algebraic Approach) Name

 Previously, we graphed linear equations by plotting several points in a table. But, let’s look forward at the big picture. There are 4 different methods to graph a linear function. Each method has its benefits and we will learn each.

 First, let’s take a deeper look at what a linear function is.

1. **IDENTIFY LINEAR FUNCTIONS**

A linear function is:

* A function that can be graphically represented in the coordinate plane by a *straight line*.
* A linear function is a *first-degree* polynomial of the form, *F(x*) = *m* *x* + *c*, where *m* and *c* are constants and *x* is a real variable.



 Examples: *y* = 2*x* is a linear function (graphed to the right)

 *y* = 3*x* + 5 is a linear function.

 *y* = $\frac{1}{2}x-4$ is a linear function.

 Practice: [Identify Linear Functions](http://www.ixl.com/math/algebra-1/identify-linear-functions)

 Now let’s review the first method…

1. **REVIEW OF PLOTTING SEVERAL POINTS METHOD**

 Example 1: $y=-2x+3$



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| --- | --- |
| Inputx | Output y |
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|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

 Example 2: $y=\frac{2}{3}x-4$

|  |  |
| --- | --- |
| Inputx | Output y |
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1. **FINDING X AND Y INTERCEPTS METHOD**

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| The graphical concept of *x*- and *y*-intercepts is pretty simple. The *x*-intercepts are where the graph crosses the *x*-axis, and the *y*-intercepts are where the graph crosses the *y*-axis.  |

More specifically,

* a *x*-intercept is a point in the equation where the *y*-value is zero, and
* a *y*-intercept is a point in the equation where the *x*-value is zero.

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| Then, algebraically,* a *x*-intercept is a point on the graph where *y* is zero, and
* a *y*-intercept is a point on the graph where *x* is zero.
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Find the x and y intercepts of each equation below:

Example 1: $y=-2x+3$

Example 2: $y=\frac{2}{3}x-4$

1. **SLOPE INTERCEPT FORM**

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Example 1: $y=-2x+3$ Example 2: $y=\frac{2}{3}x-4$

