# Objective 3 - Convert between a linear equation and its graph.

*Constructing the linear equation based on its graph.*

Link to section in online textbook and link to section in Prelude to Active Calculus textbook.

First, watch the video below to learn how to convert from a graph to its linear function. You can use the notes here to follow along with the video and record your thoughts.

YouTube link: `https://www.youtube.com/watch?v=LO8TfJoH3NI`

**Question 1** *Write the equation of the line in the graph below in Slope-Intercept form and in Standard form.*

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Learning outcomes: Recognize and construct linear functions as well as solve linear equations.

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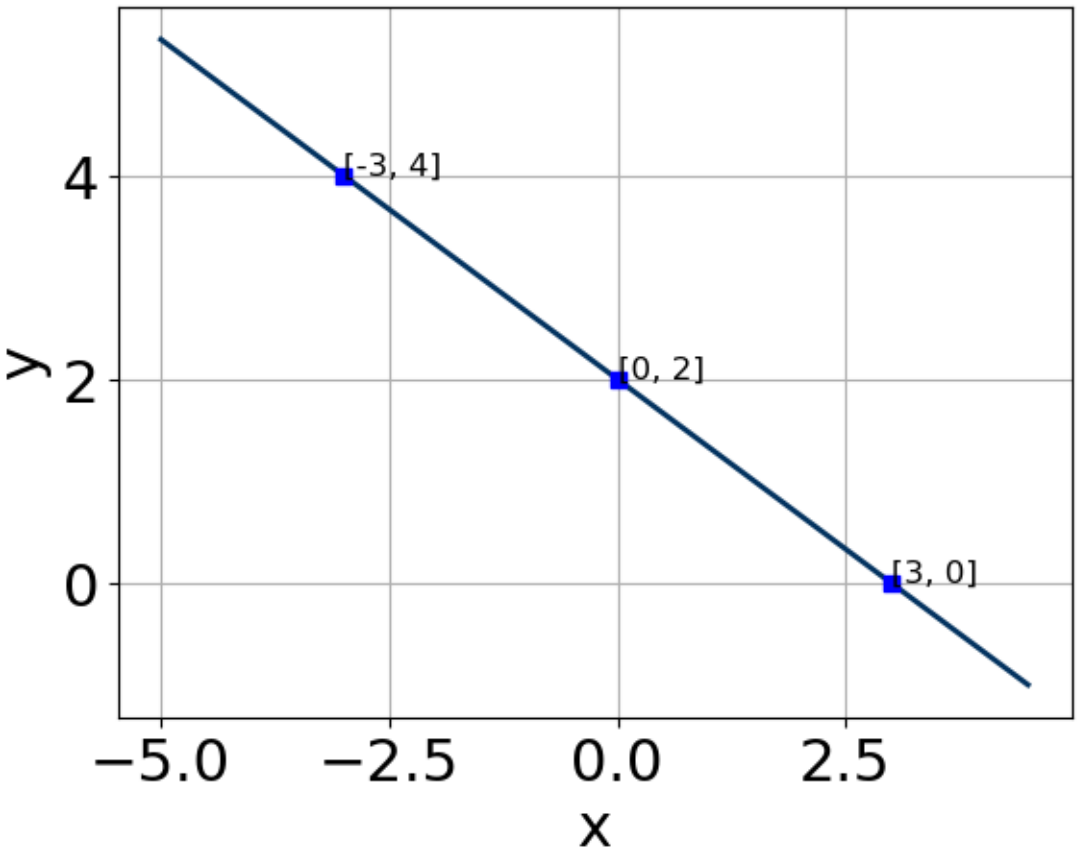


*Slope-Intercept form:* $y = \boxed{-2/3}\,x + \boxed{2}$

*Standard form:* $\boxed{2}\,x + \boxed{3}\,y = \boxed{6}$

***Hint:*** *What do we know about the coefficients in Standard Form? Is there anything special about the coefficient for $x$?*

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**Question 2** *Write the equation of the line in the graph below in Slope-Intercept form and in Standard form.*

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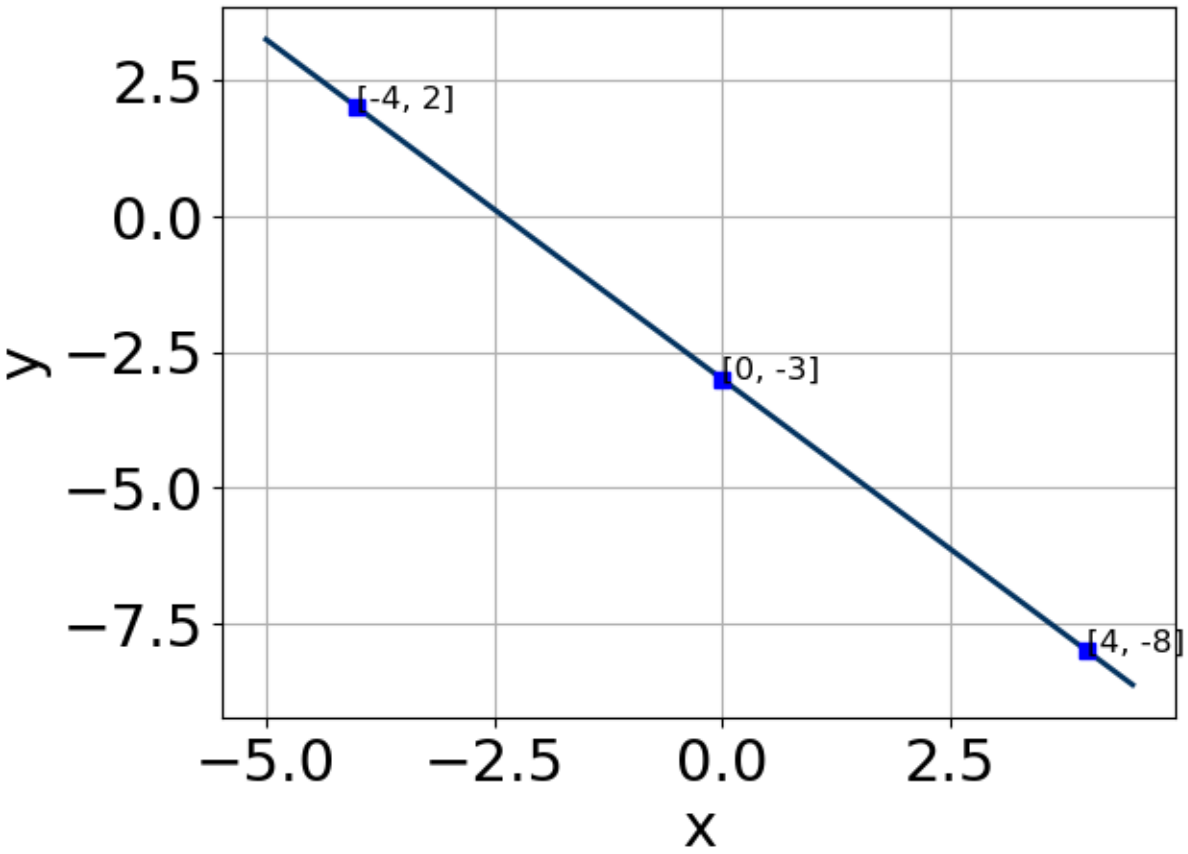


*Slope-Intercept form:* $y = \boxed{-5/4}\,x + \boxed{-3}$

*Standard form:* $\boxed{5}\,x + \boxed{4}\,y = \boxed{-12}$

***Hint:*** *What do we know about the coefficients in Standard Form? Is there anything special about the coefficient for $x$?*

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**Question 3** *Write the equation of the line in the graph below in Slope-Intercept form and in Standard form.*

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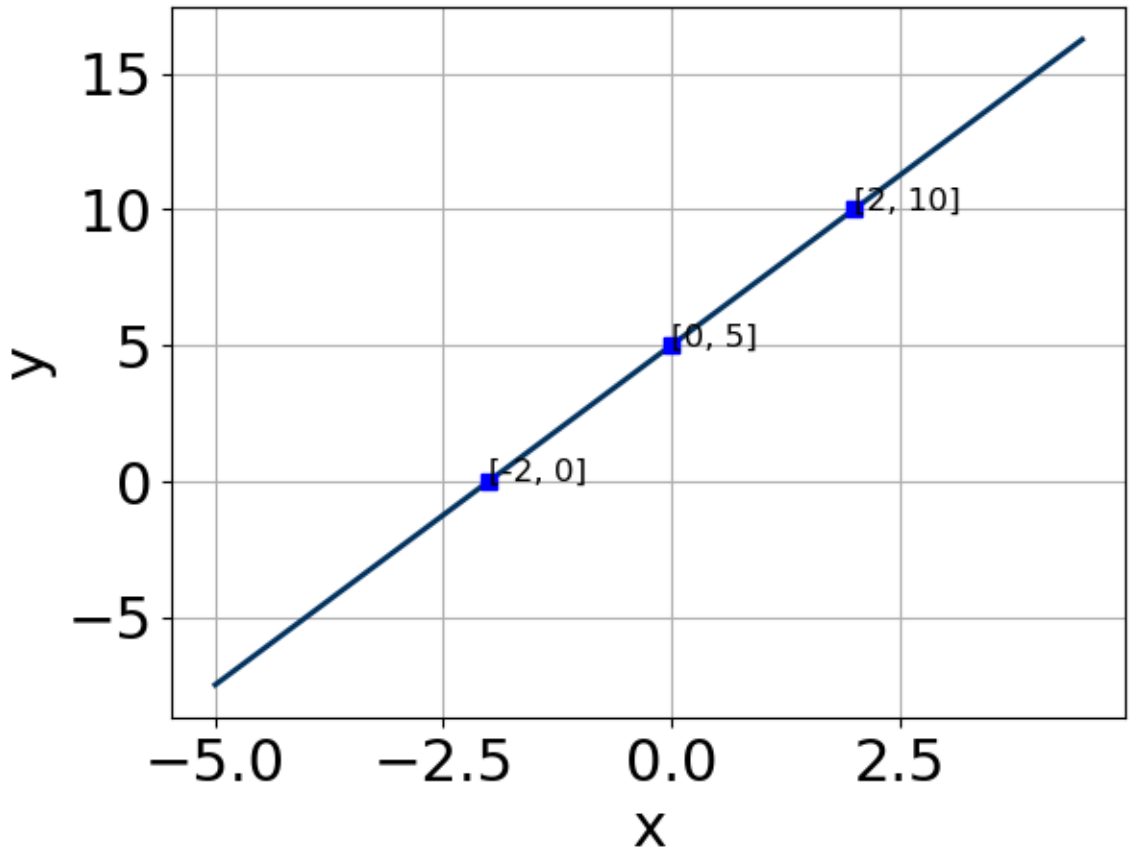


*Slope-Intercept form:* $y = \boxed{5/2}\,x + \boxed{5}$

*Standard form:* $\boxed{5}\,x + \boxed{-2}\,y = \boxed{-10}$

***Hint:*** *What do we know about the coefficients in Standard Form? Is there anything special about the coefficient for $x$?*