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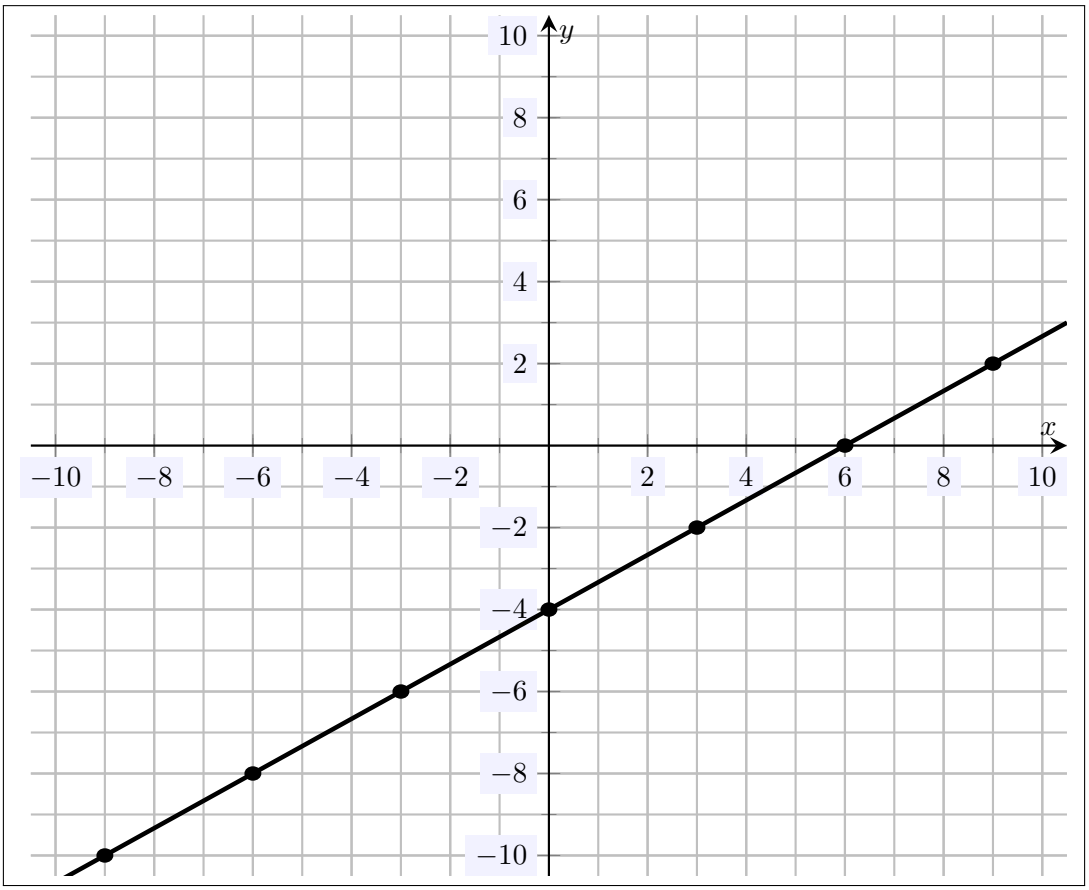
MATH 101
Fall 2022
HW 11: Due 11/07

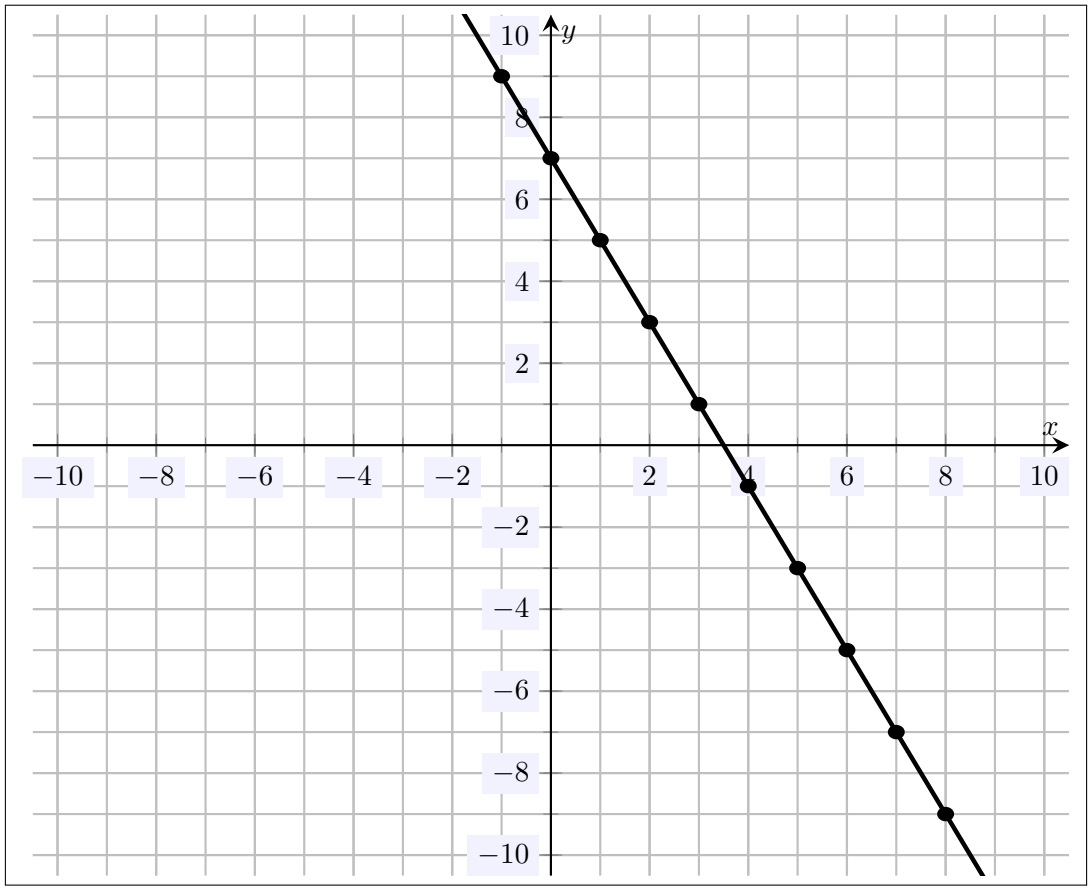
"What you learn from a life in science is the vastness of our igorance."
–David Eagleman

Problem 1. (10pt) Plot the linear function $f(x) = \frac{2}{3}x - 4$ as accurately as possible.



We know that $f(x) = \frac{2}{3}x - 4$ is a linear function because it has the form $y = mx + b$ with $m = \frac{2}{3}$ and $b = -4$. The y-intercept is -4, i.e. $(0, -4)$. The slope is $\frac{2}{3}$, i.e. $\frac{\Delta y}{\Delta x}$. Then for each increase of 3 in x, there is an increase of 2 in y. Because $\frac{2}{3} = \frac{-2}{-3}$, this is equivalent to every 3 decrease in x there is a decrease of 2 in y. Using these facts along with the y-intercept, we can plot the points on the graph above to create the line.

Problem 2. (10pt) Plot the linear function $f(x) = 7 - 2x$ as accurately as possible.



We know that $f(x) = 7 - 2x$ is a linear function because it has the form $y = mx + b$ with $m = -2$ and $b = 7$. The y-intercept is 7, i.e. $(0, 7)$. The slope is $-2 = \frac{-2}{1}$, i.e. $\frac{\Delta y}{\Delta x}$. Then for each increase of 1 in x, there is a decrease of 2 in y. Because $\frac{-2}{1} = \frac{2}{-1}$, this is equivalent to every 1 decrease in x there is an increase of 2 in y. Using these facts along with the y-intercept, we can plot the points on the graph above to create the line.