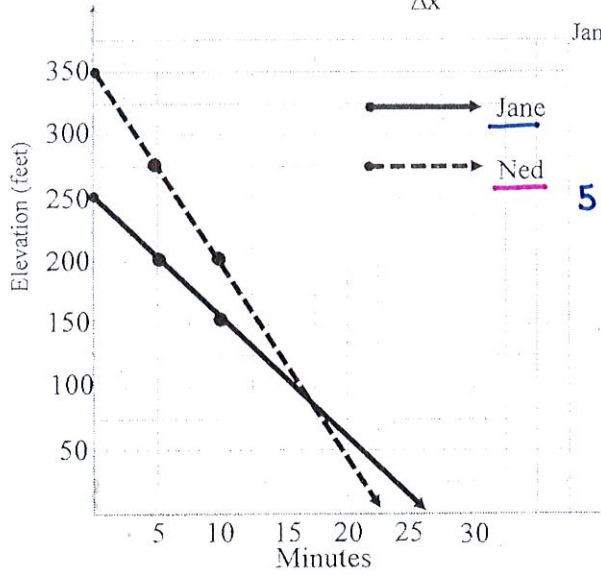Comparing Rate of Change and Initial Value on Graphs

Big Idea: Rates of Change $\dfrac{\Delta y}{\Delta x}$ of graphs can be compared to one another.

Elevation (feet) — Minutes

—→ Jane
•---→ Ned

Jane and Ned are riding their bikes down a hill. Their graphs are shown.

Who is going down the hill faster? (Make a table for each rider to support your answer). **Ned 15 > 10**

$5 < \begin{array}{c|c} x & y \\ 0 & 250 \\ 5 & 200 \end{array} \underset{}{\Big>} -50$

$\dfrac{\Delta y}{\Delta x} = \dfrac{-50}{5} = -10$

$5 < \begin{array}{cc} x & y \\ 0 & 350 \\ 5 & 275 \end{array} \underset{}{\Big>} -75$

$\dfrac{\Delta y}{\Delta x} = \dfrac{-75}{5} = -15$

How much further down the hill did Jane start? **350 - 250 = 100 feet**

Write an equation to represent their descent of the hill.

Jane: **y = -10x + 250**

Ned: **y = -15x + 350**