




Linear Functions: Equal Differences over Equal Intervals

Representation	Identify rate of change by:
Tables	<ul style="list-style-type: none"> All equal intervals of x (inputs) have equal change in y (outputs). Common difference $= \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1}$
Graphs	<ul style="list-style-type: none"> Line or linear pattern (dots that are in a line). Constant slope (rate of change) $= \frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x}$ <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Positive Slope</p> </div> <div style="text-align: center;">  <p>Negative Slope</p> </div> <div style="text-align: center;">  <p>Zero Slope</p> </div> </div>
Equations	<ul style="list-style-type: none"> In recursive (discrete): <i>previous output + common difference</i> In explicit: repeated addition presents as a PRODUCT <p style="text-align: center;">Ex: $y = 2 + 4x$ ←</p> <ul style="list-style-type: none"> Coefficient of input is the common difference or rate of change