Rate of Change of Graphs NOTES:

**Positive rate of change:** When the value of \( x \) increases, the value of \( y \) increases and the graph slants upward.

![Graph with positive rate of change]

**Negative rate of change:** When the value of \( x \) increases, the value of \( y \) decreases and the graph slants downward.

![Graph with negative rate of change]

**Initial Value:** The amount you start with in a function.

On a graph, the initial value is the point where the data passes through the y-axis.

In a table, when the x-value is zero, the y-value is the initial value.

On a graph, rate of change is also determined by the change in the \( y \) over the change in \( x \), or the change in the dependent variable divided by the change in the independent variable.

Find Rate of Change

- **Distance:** 6 mi
- **Time:** 1 hr

\[
\frac{\text{Change in Distance}}{\text{Change in Time}} = \frac{6 \text{ mi}}{1 \text{ hr}} = 6 \text{ mi/hr}
\]

What is the change in \( y \)?

What is the change in \( x \)?

Write as a fraction:

\[
\frac{\text{change in } y}{\text{change in } x}
\]

Now write as a statement:

What is the initial value?
What is the change in $Y$? What is the initial value?

What is the change in $x$?

Write as a fraction:
\[
\frac{\text{change in } y}{\text{change in } x}
\]

Now write as a statement:

What is the change in $Y$? What is the initial value?

What is the change in $x$?

Write as a fraction:
\[
\frac{\text{change in } y}{\text{change in } x}
\]

Now write as a statement:

Write as a fraction:
\[
\frac{\text{change in } y}{\text{change in } x}
\]

Now write as a statement:

What is the initial value?
Write as a fraction: 
\[
\frac{\text{change in } y}{\text{change in } x}
\]

Now write as a statement:
What is the initial value?

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\[
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\]

Now write as a statement:
What is the initial value?

Write as a fraction: 
\[
\frac{\text{change in } y}{\text{change in } x}
\]

Now write as a statement:
What is the initial value?