## Lecture Handout \#03: Sep 6

## Average Rates of Change

Compute the average rate of change of $f(x)=$ $\qquad$

- between $x=$ $\qquad$ and $x=$ $\qquad$
- between $x=$ $\qquad$ and $x=$ $\qquad$
- between $x=$ $\qquad$ and $x=$ $\qquad$


## Position and Velocity

Location of a bicyclist along a trail at different times of the day:

| Time | $1: 00 \mathrm{pm}$ | $1: 15$ | $1: 40$ | $2: 00$ | $2: 10$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Position $(\mathrm{km})$ | 0 | 5.5 | 18 | 29 | 28 |

## Average Cost Per Unit

Cost of producing 2-liter plastic bottles:

| Quantity | 0 | 1000 | 2000 | 4000 | 10,000 |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Cost (\$) | 600 | 720 | 820 | 980 | 1400 |

## Concavity

Draw a graph of a function that is:

increasing and concave up

increasing and concave down

decreasing and concave up

decreasing and concave down

