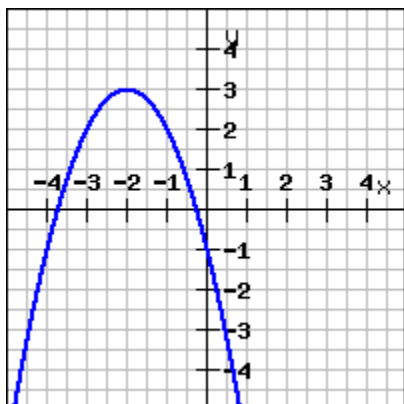


MHF4U: Average Rates of Change

1. Given the table below, calculate the average rate of change on each interval.

x	0	1	2	3	4	5
$f(x)$	1	0	1	4	9	16

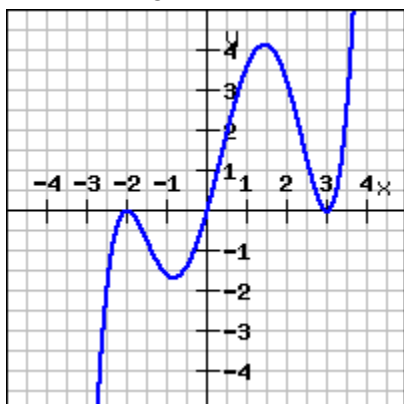
- $[1, 3]$
 - $[1, 5]$
 - $[0, 2]$
2. Given the graph below, calculate the average rate of change on each interval.



- $[-4, -2]$
- $[-3, -1]$
- $[-3, 0]$

3. Calculate the average rate of change for the function $f(x) = 3x^2 - 2x + 5$ on each interval.

- $[2, 3]$
 - $[2, 2.5]$
 - $[2, 2.1]$
 - $[2, 2.01]$
4. Given the graph below, state whether the average rate of change on each given interval is positive, negative or zero.



- $[0, 2]$
- $[1, 3]$
- $[-2, 0]$

- Calculate the slope of the secant for $f(x) = -2(x - 4)^3 - 9$ on the interval $[1, 5]$.
- From 2011-2021, the population of a town grows from 4 500 to 6 800. What is the average rate of change, and what assumptions about the growth must we make?

- Over a seven-year span, a painting originally purchased for \$16 000 increases in value to \$25 000. What is the average rate of change during this time?
- A secant to the quadratic function $f(x) = 3x^2 - 16x + 37$ has equation $g(x) = 8x + 1$. What interval on the domain does this span?
- What is the equation of the secant to the cubic function $f(x) = \frac{1}{4}(x - 2)^3 + 1$ on the interval $[0, 4]$?

Solutions

- a. 2 b. 4 c. 0
- a. 2 b. 0 c. -1
- a. 13 b. 11.5 c. 10.3 d. 10.03
- a. pos b. neg c. zero
- 14
- 230 people per year, assume that growth is linear
- \$1 285.71 per year
- $[2, 6]$
- $g(x) = x - 1$