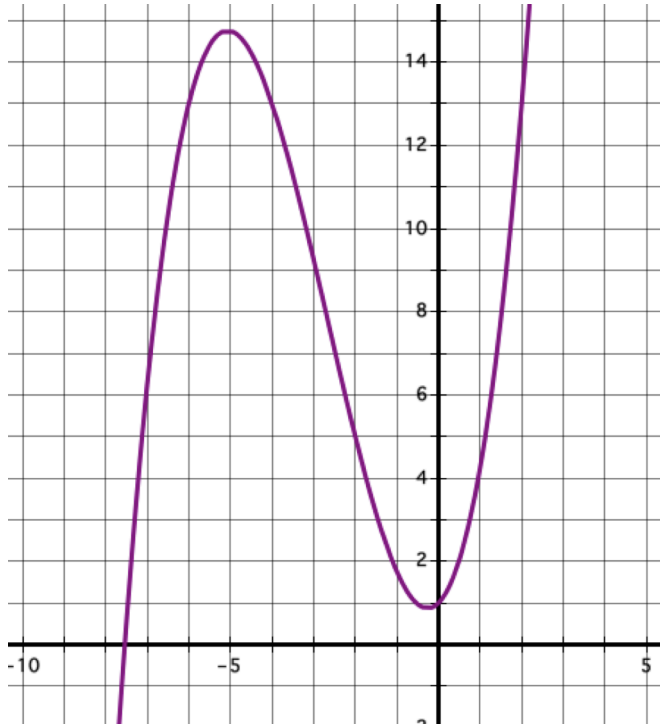# PRACTICE TEST: RATE OF CHANGE

SHOW ALL YOUR WORK*. Be sure to include units for all rates of change.*

1. Tristan lands himself a job at the American Institute of Architects in Washington, DC. His salary can be modeled linearly. His starting salary is $65,000, and he is guaranteed an annual salary increase of $3,000 per year.

   a. Write an equation to model Tristan's salary.

   b. What is the rate of change?

   c. How much will Tristan's salary be in 7 years?

   d. When will Tristan's salary be $104,000?

2. Find the AROC on the interval of [2, 6] for the function $g(x) = \frac{1}{2} x^2 + 3$.

3. Given the graph below, find the AROC on the interval [-3, 1].

4. The movie, *Straight Outta Compton*, was released on August 14, 2015 in theatres. Below is a table of the weekly gross income for the movie by weeks. Week 1 is the first week in theatres, and week 2 is the second week in theatres, etc. (http://www.boxofficemojo.com/movies/)

Wk	1	2	3	4	5	6	7	8
Gross $	84,723,470	36,162,705	18,049,530	12,686,895	12,686,895	5,328,660	2,596,870	880,290

a. Find the AROC from week 1 to week 8.

b. Find the IROC at week 2.